Ariazone 5001 (5001HD, 5001P, 5001PHD)
Automotive A/C Service Station

Repair Manual

PLEASE NOTE

All the information is this service manual was current when it was printed. Because of continuous design updates and model improvements, it is not possible to guarantee that the information in this manual is current.

As it is not possible to cover all procedures and handling instructions in the one manual - it is a technician guide only. Operators must use their own judgement and take responsibility for their own actions when carrying out general maintenance and repairs. If there are any queries about safety or the correct technique, contact the manufacturer.

This manual has been prepared for experienced service personnel only. It is **NOT** designed for **non-technical** users. We strongly recommend that technicians read the manual before any attempt is made to repair or service any Ariazone system.

The correct service methods & repair procedures must be followed to ensure the reliability of the machine and the safety of technician.

The methods and procedures in this manual outline the manufacturer's general recommendations to ensure the reliability of the product.

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1. IMPORTANT SAFETY NOTICE

HIGH VOLTAGE

Ariazone 5001 operate with high voltage of 220-240VAC, 50Hz. Check label on machine. Use extreme care when carrying out tests or repairs.

DO NOT carry out tests or repairs in a wet environment, which can cause injury or death due to possible electric shock.

DO NOT use equipment with damaged power leads, which can cause injury or death.

FROSTBITE or BLINDNESS.

Refrigerants can be extremely **dangerous**. They can cause serious **frostbite** or **blindness**; therefore they **MUST** be handled correctly

Always wear protective **gloves** & **glasses. Do not keep** lubricating **oil on skin** for prolonged periods.

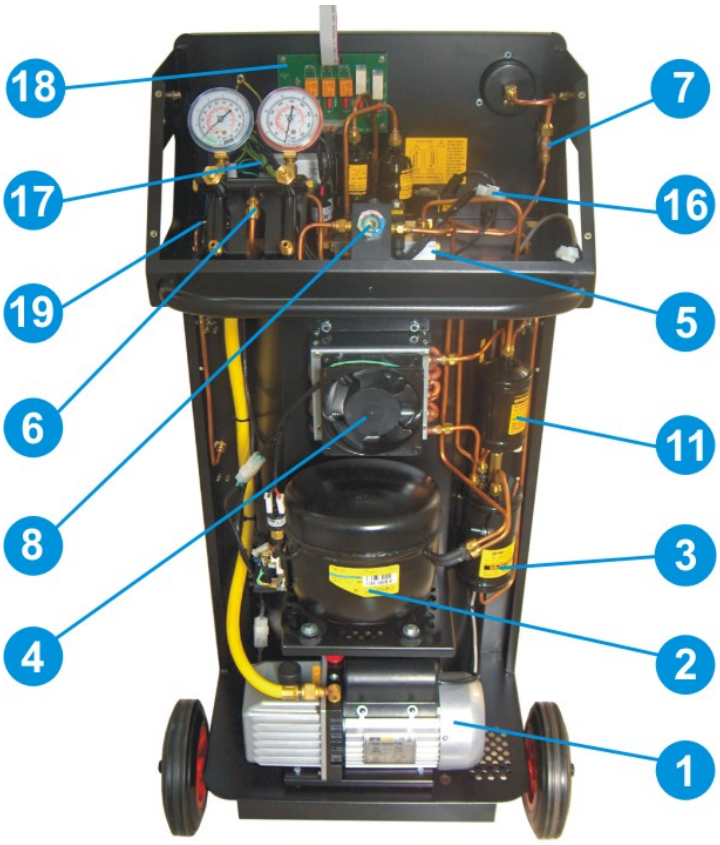
GOOD VENTILATION.

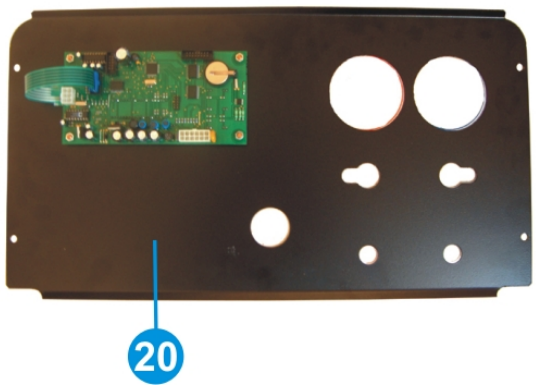
Always work in a **well**-**ventilated** area when handling refrigerants and lubricating oil.

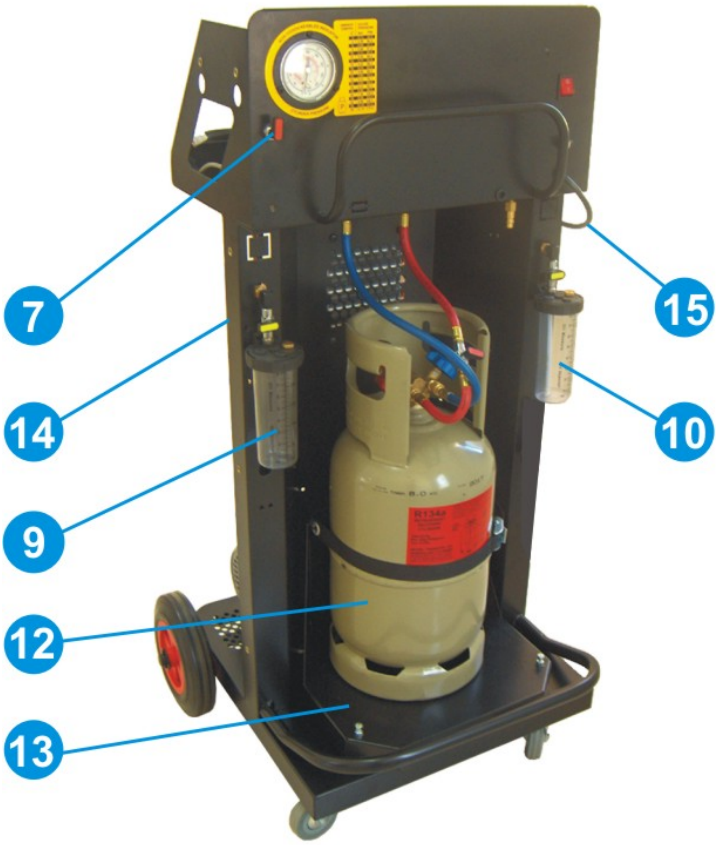
QUERIES? CHECK WITH MANUFACTURER FIRST.

If you have any queries about the correct use, repairs or service procedures, always contact your distributor or Ariazone International before you carry out any testing or repairs.

2. COMPONENT LOCATION AND IDENTIFICATION



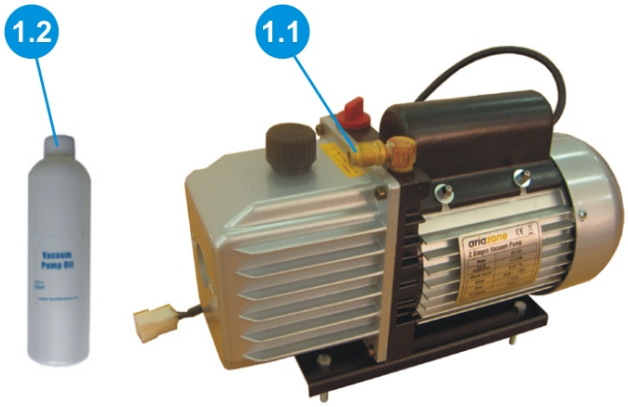




Ariazone 5001 - MODULES

1. Evacuation Pump
2 .Recovery Pump
3. Oil Separator
4. Air Cooled Condenser (HD model)
5. Main Solenoid Valve Manifold
6. Hand Manifold with Gauges
7. Cylinder Air Purge Valve with Gauge
8. Moisture Indicator
9. Recovered Oil Drain Valve
10. New Oil Injection Valve
11. Main Filter Dryer
12. Refrigerant Cylinder
13. Cylinder Platform & Load Cell
14. Chassis
15. Power Supply
16. Low Voltage Wirings (12VAC)
17. High Voltage Wirings (220-240VAC)
18. Relay Card
19. Evacuation Solenoid Valve
20. Display Panel
21. Service Hoses with Quick Couplers

2.1. Evacuation Pump



Flow Rate: 100 lit/min (3.5 CFM)
Ultimate Vacuum: 3×10^{-1}Pa
Stage: 2
Power: 1/3 HP
Oil Capacity: 350ml

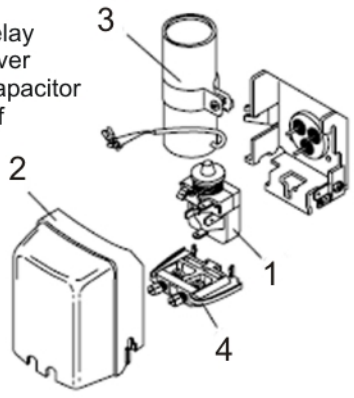
1.		**Evacuation Pump Module** Code: 000573 Weight: 12 kg, Pack. Dimensions: 380 x 210 x 300mm
1.1.		**3/8"NPT - 3/8" Flare Elbow** Code: 000166 Weight: 0.06 Pack. Dimensions: 105 x 60 x 40mm
1.2.		**High Q-ty Vacuum Pump Oil - 330 ml** Code: 000030 Weight: 0.3kg Pack. Dimensions: D60 x 200mm

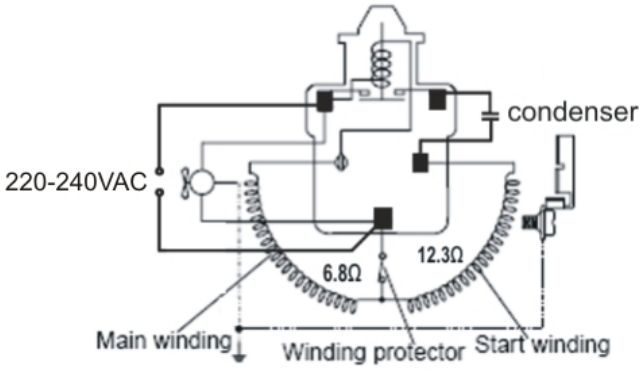
2.2. Recovery Pump

FR11G,
Power: 275W
Oil q-ty: 450ml
Starting Capacit.: 80µF

2.1.		**Recovery Pump FR11G -** 1/4" flare male connectors Code: 000203 Weight: 12 kg Pack. Dimensions: 250 x 150 x 200mm
2.2.		**Pressure Switch (1.7-2.4Bar) -** Compres. Liquid Control Code: 000013 Weight: 0.03 kg Pack. Dimensions: 105 x 60 x 40mm
2.3.		**High Q-ty Recovery Pump Oil** - 0.5 Lit Code: 000474-1 Weight: 0.5Lit Pack. Dimensions: 70 x 70 x 210mm
2.4.		**Copper pipe -** Moisture Ind. - Recovery Pump Suct. Code: 000550 Weight: 0.085kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)
2.5.		**Copper pipe -** Recovery Pump Disch. - Oil Separator Code: 000531 Weight: 0.04kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)

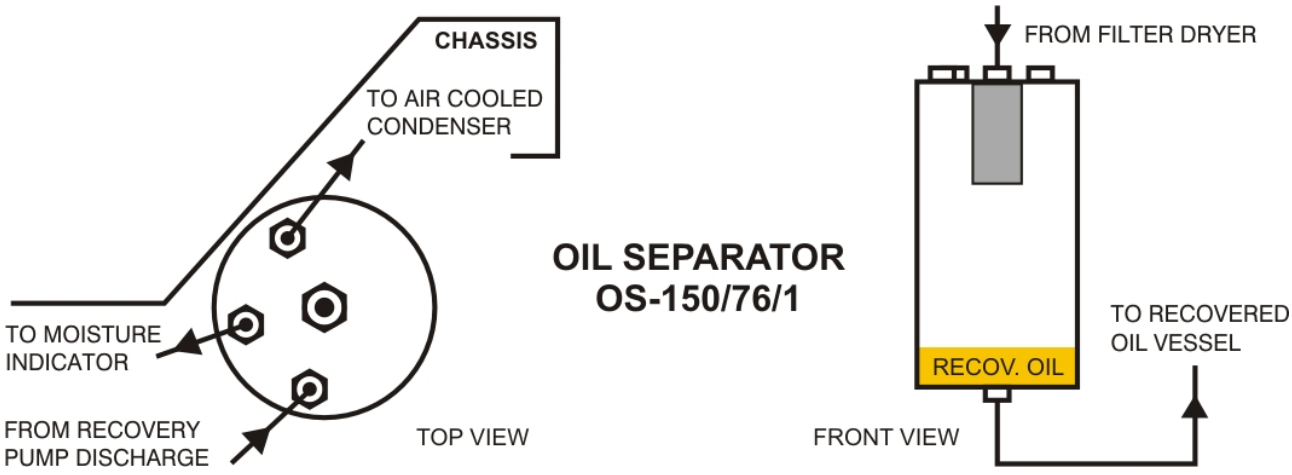
1. Starting relay
2. Plastic cover
3. Starting capacitor
4. Cord relief



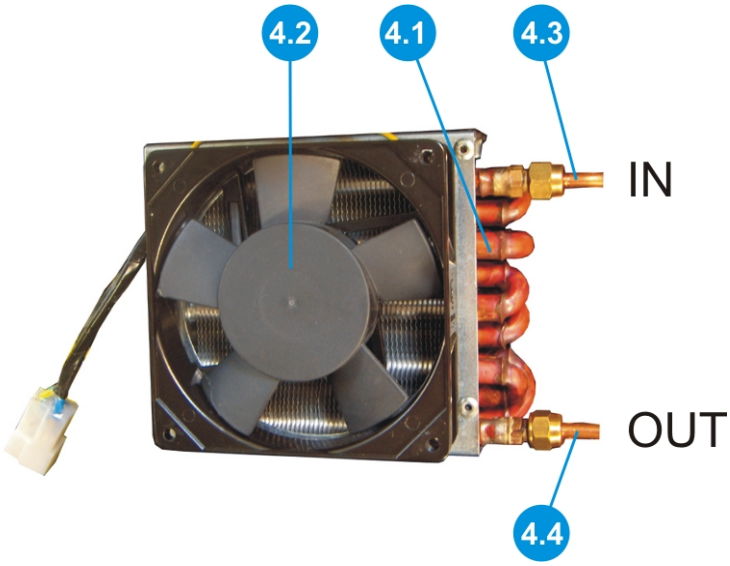


2.3. Oil Separator

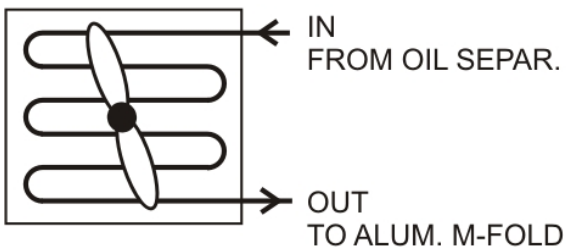
3.1.		**Oil Separator AI-150/76/1** Code: 0000125 Weight: 1kg Pack. Dimensions: 80 x 80 x 260mm
3.2.		**1/4" Fem. Flare - 1/4" Fem. Flare** Code: 000199 Weight: 0.05 kg Pack. Dimensions: 105 x 60 x 40mm
3.3.	 HNBR "O" Ring (5.28 x 1.78mm)	**Copper pipe -** Oil Sepat. - Recov. Oil Vessel Code: 000551 Weight: 0.1 kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)



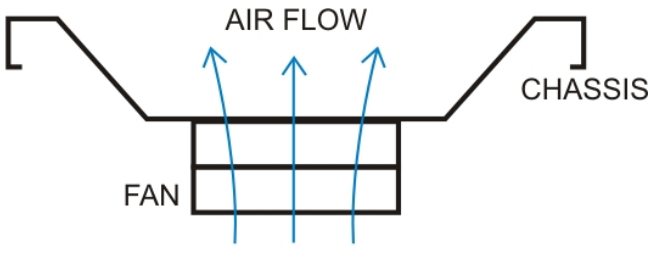
2.4. Air Cooled Condenser (HD model)



4.1.		**Condensing Coil** Code: 000054 Weight:0.65 kg Pack. Dimensions: 120 x 200 x 210mm
4.2.		**Cooling Fan -***120 x 120 x 35mm* Code: 000009 Weight: 0.58kg Pack. Dimensions: 125 x 125 x 50mm
4.3.		**Copper pipe -** Oil Separat. - Air Cool. Condens. Code: 000540 Weight: 0.06kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
4.4.		**Copper pipe -** Air Cool. Cond. - Solenoid M-fold Code: 000530 Weight: 0.12kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)

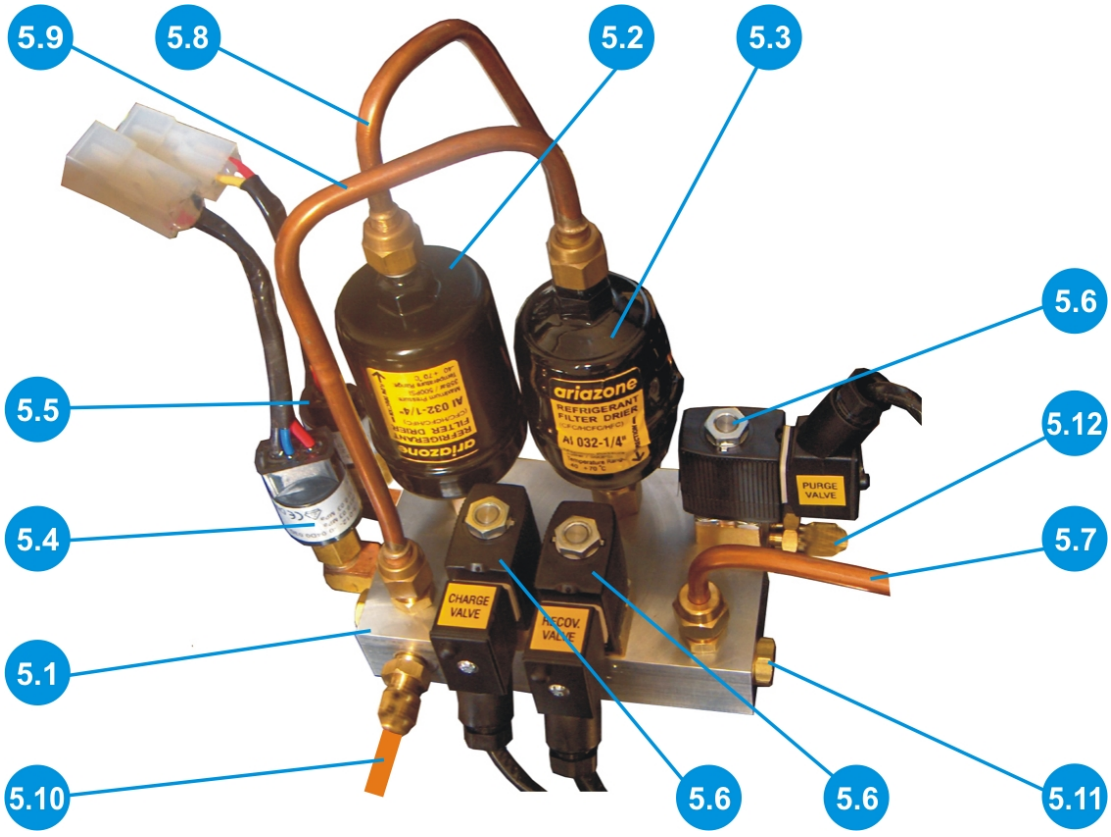


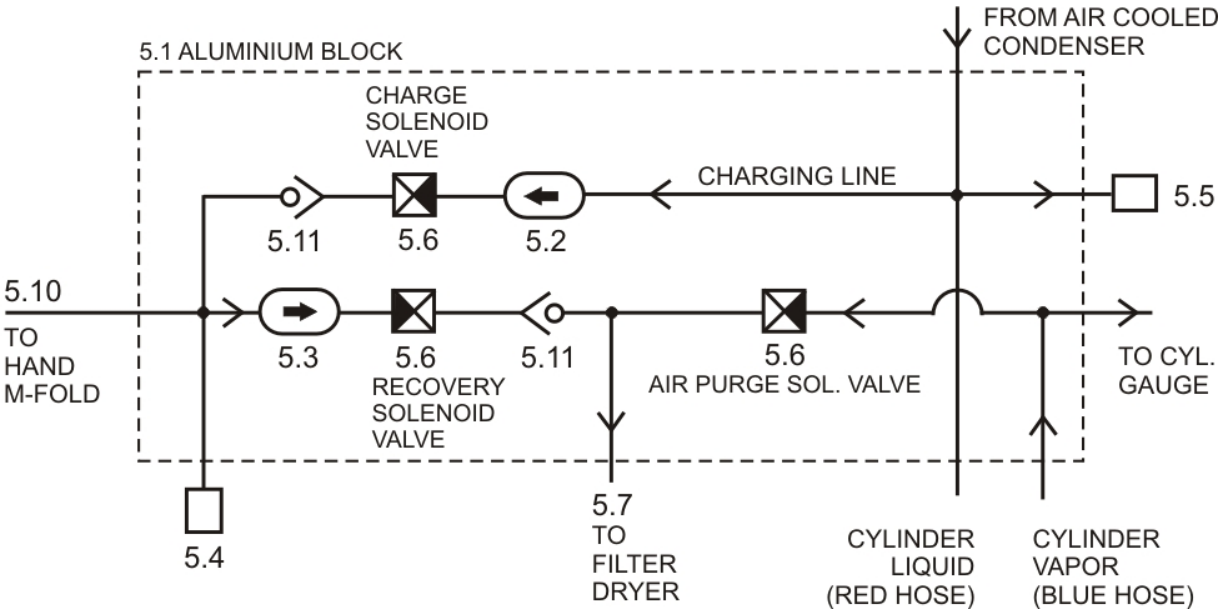
FRONT VIEW



TOP VIEW

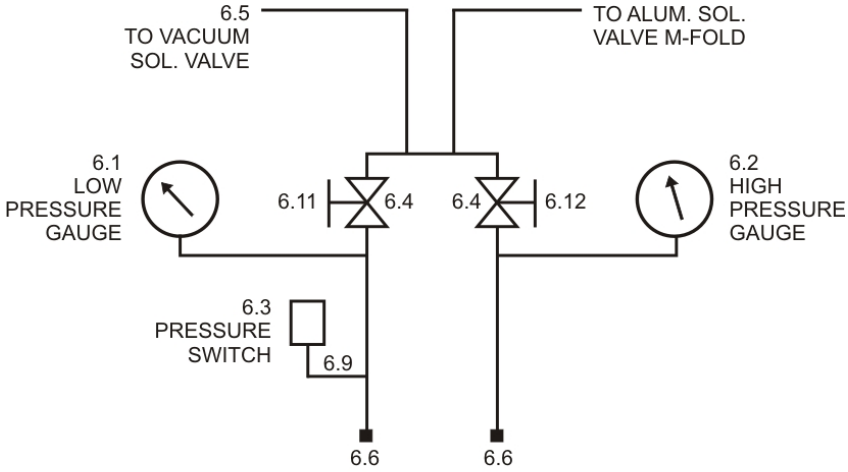
2.5. Solenoid Valve Manifold





5.1.		**Solenoid Valve Manifold -** Assembly Code: 000584 Weight: 0.7 kg Pack. Dimensions: 120 x 200 x 210mm
5.2.		**Primary Filter (Charging Line) – Until year 2100** Code: 000816 Weight: 0.07kg Pack. Dimensions: 105 x 60 x 40mm
5.3.		**Primary Filter (Recovery Line) – Until year 2100** Code: 000005 Weight: 0.07kg Pack. Dimensions: 105 x 60 x 40mm
5.4.		**Pressure Switch -** Recovery Complete Code: 000017 Weight: 0.05 kg Pack. Dimensions: 105 x 60 x 40mm
5.5.		**Pressure Switch -** *High Pressure Control* Code: 000016 Weight: 0.05 kg Pack. Dimensions: 105 x 60 x 40mm
5.6.		**Solenoid Valve - Charge / Recovery / Air Purge** Code: 000076 Weight: 0.1kg Pack. Dimensions: 105 x 60 x 40mm
5.7.		**Copper pipe -** Main M-Fold - Main Filter Dryer Code: 000536 Weight: 0.055kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
5.8.		**Copper pipe -** Main M-fold - Charg Prim. Filter Code: 000533 Weight: 0.05kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
5.9.		**Copper pipe -** Main M-fold - Recov. Prim. Filter Code: 000537 Weight: 0.045kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
5.11	 HNBR "O" Ring (2.84x2.62mm)	**Check valve** - Assembly inside manifold Code: 000202 Weight: 0.05 kg Pack. Dimensions: 105 x 60 x 40mm
5.12		**1/8"BSP - 1/4" Flare male/male** Code: 000129 Weight:0.15kg Pack. Dimensions: 105 x 60 x 40mm
5.13.		**Primary Charging Line Filter – From year 2100** Art No: 000826 Weight: 0.07kg Pack. Dimensions: 105 x 60 x 40mm
5.14.		**Primary Recovery Line Filter – From year 2100** Art No: 000827 Weight: 0.07kg Pack. Dimensions: 105 x 60 x 40mm

2.6. Hand Manifold with Gauges

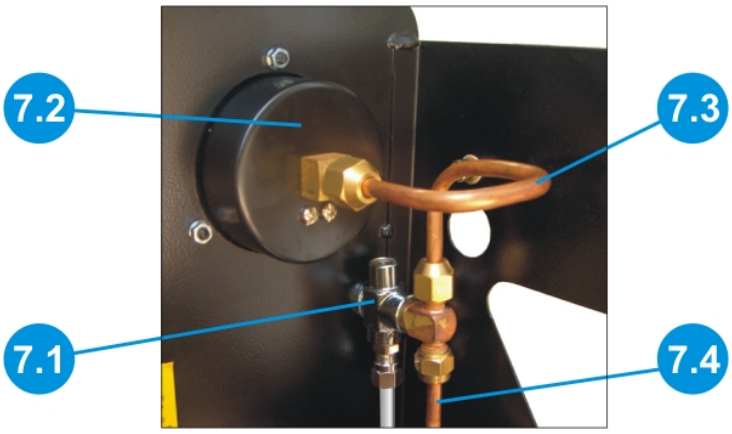


HAND M-FOLD WITH GAUGES - FLOW SCHEMATIC

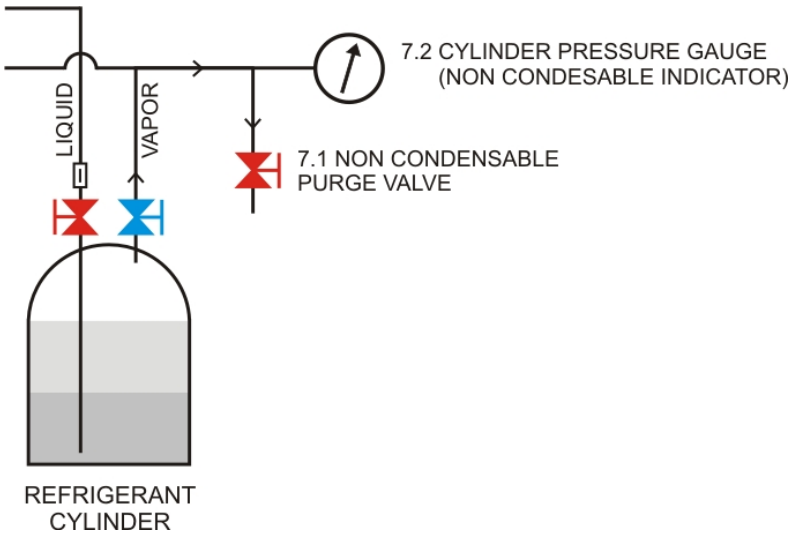
HOW TO CHECK SPOOL VALVE SEALS

6.		**Hand Manifold -** *Assembly without the Gauges* Code: 000547 Weight: 1.4kg Pack. Dimensions: 120 x 200 x 210mm
6.1.		**Gauge RG-250 (Blue) -** Low Pressure (Suction) Code: 000011 Weight: 0.15kg Pack. Dimensions: 80 x 80 x 35mm
6.2.		**Gauge RG-500 (Red) -** High Pressure (Dischrg.) Code: 000012 Weight: 0.15kg Pack. Dimensions: 80 x 80 x 35mm
6.3.		**Pressure Switch** - Pressure in System Control Code: 000014 Weight: 0.03kg Pack. Dimensions: 105 x 60 x 40mm
6.4	 HNBR "O" Ring (7.65x1.78mm)	**Hand M-fold Spool Valve** - Short type Code: 000155-1 Weight: 0.05kg Pack. Dimensions: 105 x 60 x 40mm
6.5.		**Copper pipe -** Hand M-fold - Evacuation Valve Code: 000534 Weight: 0.04kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
6.6.	 HNBR "O" Ring (7.65x1.78mm)	**1/2"ACME male - M10x1.25 male** Code: 000169 Weight: 0.15kg Pack. Dimensions: 105 x 60 x 40mm
6.8.	 HNBR "O" Ring (7.65x1.78mm)	**M10x1.25 male - 1/4" Female Flare** Code: 000135 Weight: 0.01kg Pack. Dimensions: 105 x 60 x 40mm
6.9.		**1/8"BSP - 1/4" Flare Elbow** Code: 000167 Weight: 0.03kg Pack. Dimensions: 105 x 60 x 40mm
6.10.	 HNBR "O" Ring (7.65x1.78mm)	**M10x1.25 male - 1/4" Male Female** Code: 000136 Weight: 0.15kg Pack. Dimensions: 105 x 60 x 40mm
6.11.		**Hand Wheel (Blue)** Art No: 000098 Weight: 0.03kg Pack. Dimensions: 105 x 60 x 40mm
6.12.		**Hand Wheel (Red)** Art No: 000097 Weight: 0.03kg Pack. Dimensions: 105 x 60 x 40mm

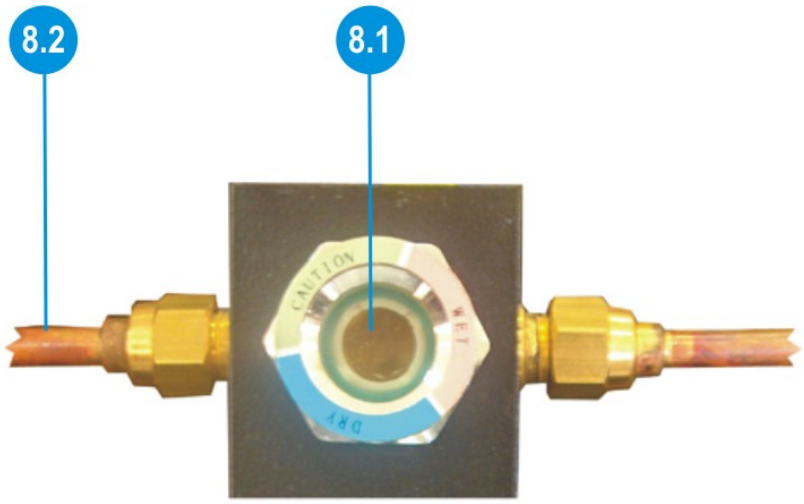
2.7. Cylinder Air Purge Valve with Gauge



7.1.		**Air Purge Valve - Assembly** Code: 000777 Weight: 0.130kg Pack. Dimensions: 105 x 60 x 40mm
7.2.		**Gauge FRG-500 – Non-condensable indicator** Code: 000010 Weight: 0.2kg Pack. Dimensions: 80 x 85 x 75mm
7.3.	 HNBR "O" Ring (5.28 x 1.78mm)	**Copper pipe -** Main M-fold - Air Purge valve Code: 000778 Weight: 0.04kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
7.4.	 HNBR "O" Ring (5.28 x 1.78mm)	**Copper pipe -** Air Purge Val. - NonCondens. Gauge Code: 000779 Weight: 0.04kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)

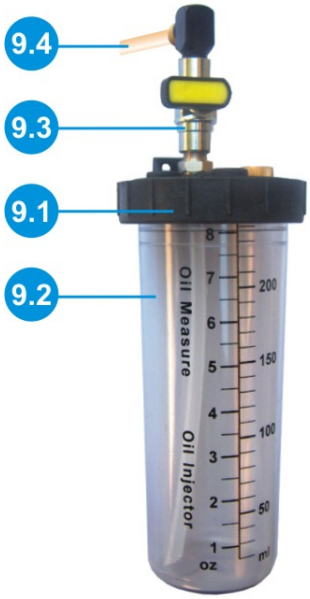


2.8. Moisture Indicator



8.1.		**Moisture Indicator** Code: 000029 Weight: 0.15kg Pack. Dimensions: 105 x 60 x 40mm
8.2.		**Copper Pipe -** Oil Separator - Moisture Ind. Code: 000549 Weight: 0.09kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)

2.9. Recovered Oil Drain Valve (Same as 8.)



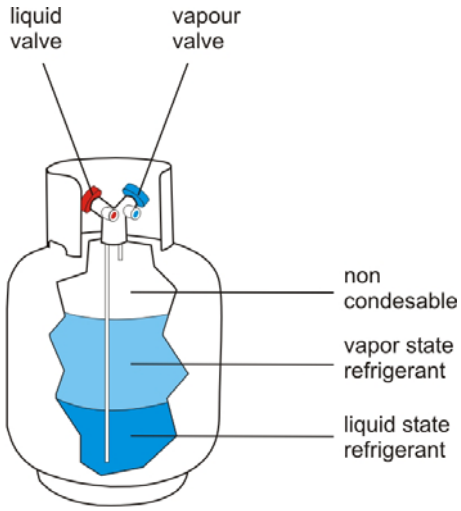
9.1.		**Oil & UV Dye Injection Valve** Code: 000545 Weight: 0.12kg Pack. Dimensions: 105 x 60 x 40mm
9.2.		**Oil Vessel - 250ml** Code: 000065 Weight: 0.05kg Pack. Dimensions: D65 x 150mm
9.3.		**Ball Valve - Yellow** 1/8"-1/8" female Code: 000206 Weight: 0.035kg Pack. Dimensions: 105 x 60 x 40mm

2.10. New Oil Drain Valve (Same as 2.9.)

2.11. Main Filter Dryer

11.		**Main Filter Dryer** Code: 000004 Weight: 0.7kg Pack. Dimensions: 70 x 70 x 210mm	**13.5**

2.12. Refrigerant Cylinder

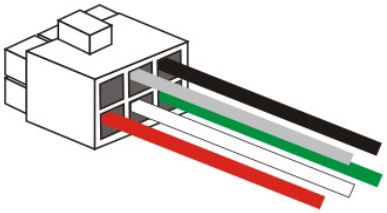


refrigerant cylinder

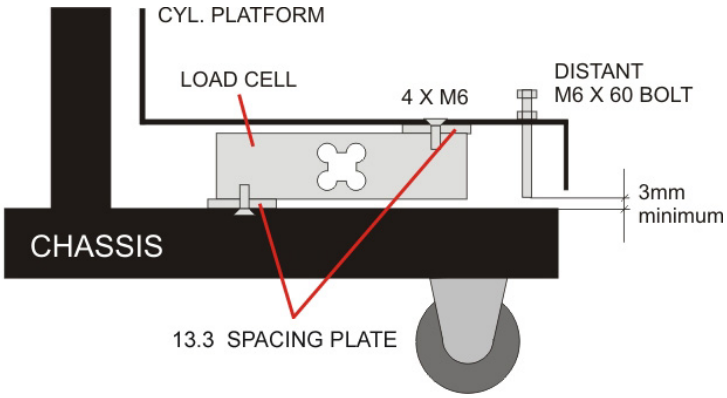
12.1.		**Refrigerant Cylinder - 12 kg** Code: 000034 Weight: 8kg Pack. Dimensions: 230 x 230 x 520mm
12.2.		**Cylinder Strap** Code: 000552 Weight: 0.07kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
12.3.		**12kg Cylinder Hose with Ball Valve - Red 45cm** Code: 000623 Weight: 0.2kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
12.4.		**12 kg Cylinder Hose - Blue 45cm** Code: 000624 Weight: 0.15kg Pack. Dimensions: 250 X 350 X 50mm (plastic bag)
12.5.		**NHBR "O" ring (5.23 x 2.62mm) -** all hoses Art No: 000184 Pack. Dimensions: 105 x 60 x 40mm 10 pcs/package Weight: 0.01kg
12.6.		**Refrigerant Cylinder - 27 kg (for HD model)** Art No: 000033 Weight: 14.2kg Pack. Dimensions: 320 x 320 x 650mm
12.3.		**27kg Cylinder Hose with Ball Valve - Red 60cm** Art No: 000555 Weight: 0.2kg Pack. Dimens.: 250 x 350 x 50mm (plastic bag)
12.4.		**27kg Cylinder Hose - Blue 60cm** Art No: 000554 Weight: 0.15kg Pack. Dimens.: 250 x 350 x 50mm (plastic bag)

2.13. Cylinder Platform & Load Cell

13.1.		**Cylinder Platform** Code: 000491-4 Weight: 2.5kg Pack. Dimensions: 300 x 350 x 270mm
13.2.		**Cylinder Load Cell - 60 kg** Code: 000570 Weight: 0.5kg Pack. Dimensions: 70 x 70 x 210mm
13.3.		**Load Cell Spacing Plate** Code: 000103 Weight: 0.55kg Pack. Dimensions: 105 x 60 x 40mm



60kg LOAD CELL CONNECTOR

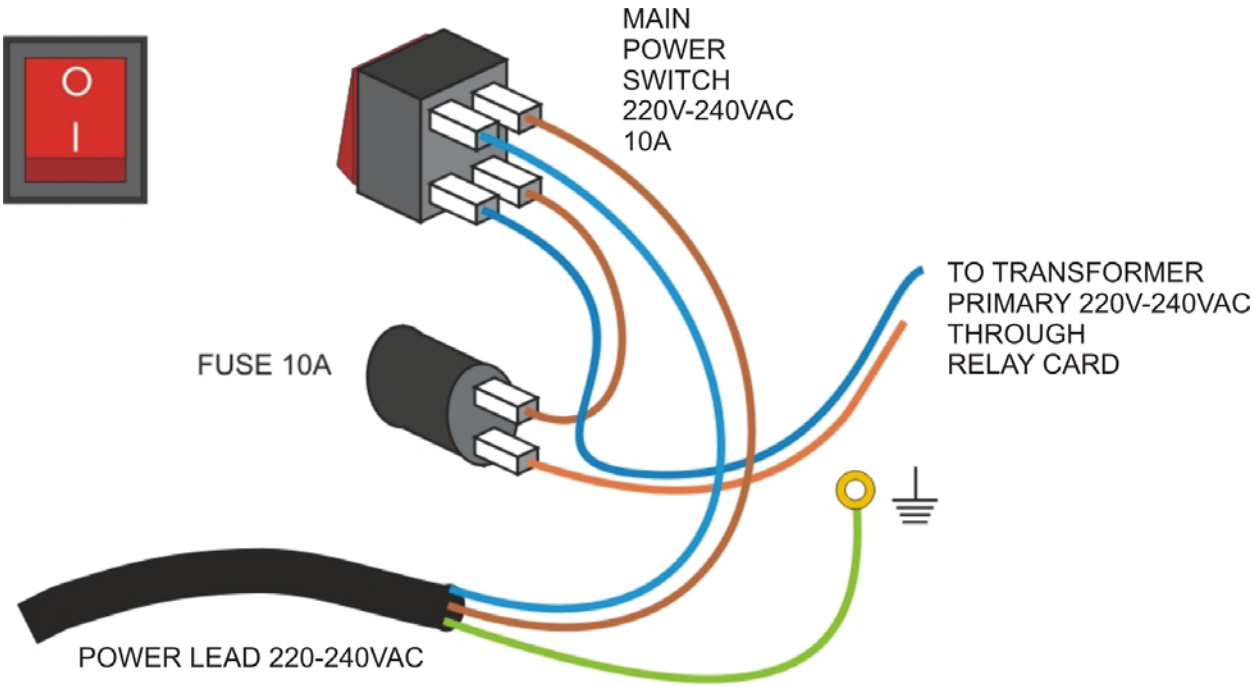


2.14. Chassis

	Image	Description
14.1.		**Chassis Basis** Art No: 000491 Weight: 30kg Pack. Dimensions: 1190 x 620 x 74mm
14.2.		**Chassis Cover- Yellow** Art No: 000491-3 Weight: 20kg Pack. Dimensions: 1190 x 620 x 74mm
14.3.		**Wheel – Yellow** *D 200 mm, 20 mm axle* Art No: 000056-1 Weight: 1.8kg Pack. Dimensions: 120 x 200 x 210mm
14.4.		**Castor wheel -** *D 75mm* Art No: 000055 Weight: 0.35kg Pack. Dimensions: 70 x 70 x 210mm

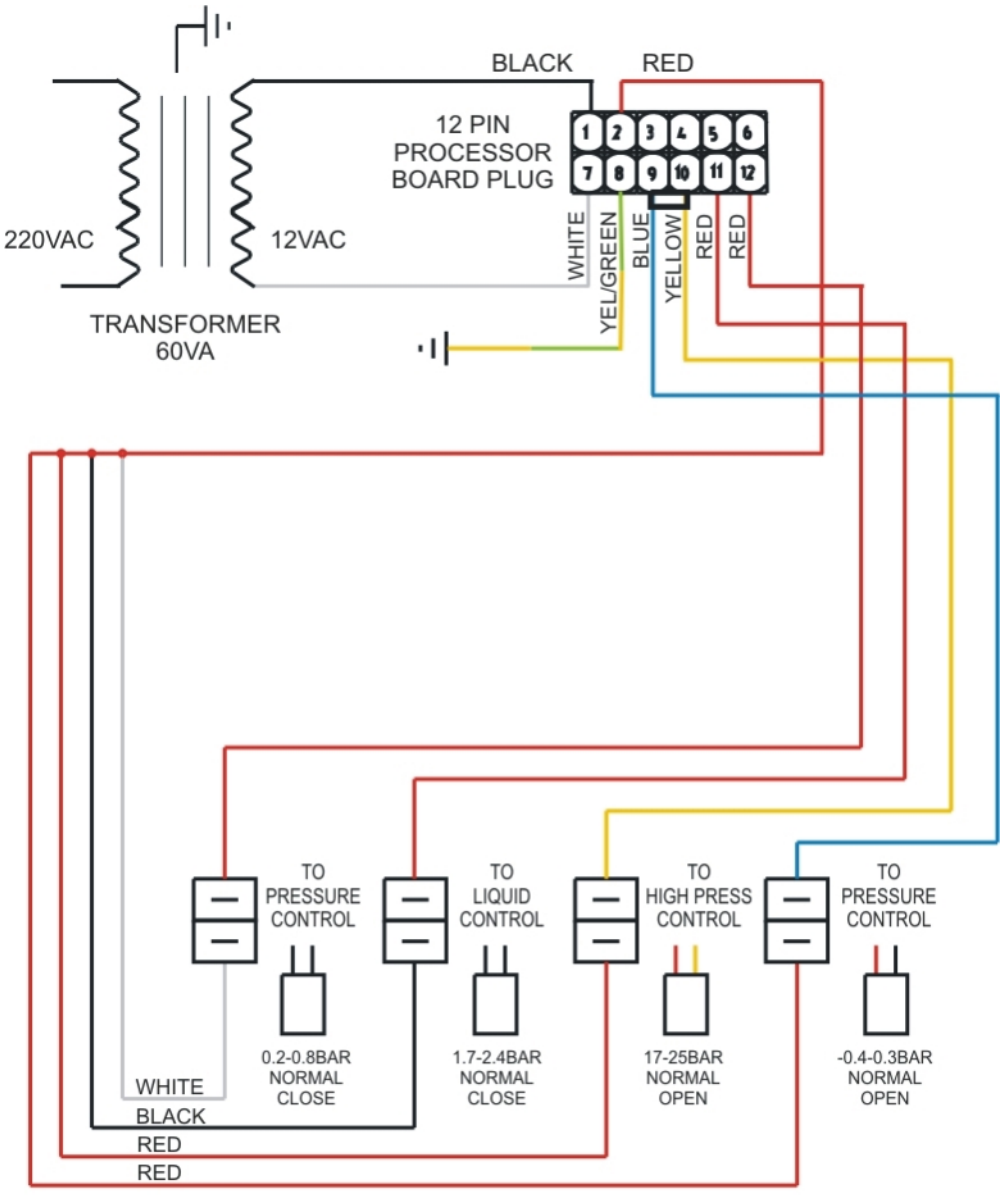
2.15. Power Supply

15.4.		**Transformer - 220-240 VAC / 12-14 VAC, 60VA** Code: 000053 Weight: 0.85kg Pack. Dimensions: 70 x 70 x 210mm
15.5.		**Fuse Holder** Code: 000101 Weight: 0.010kg Pack. Dimensions: 105 x 60 x 40mm
15.6.		**Fuse 10A slow blow** Code: 000101-1 Weight: 0.005kg Pack. Dimensions: 105 x 60 x 40mm
15.7.		**Main Power Switch** - *220-240 VAC / 10 A* Code: 000235 Weight: 0.015kg Pack. Dimensions: 105 x 60 x 40mm



2.16. Low Voltage Wiring (12VAC)

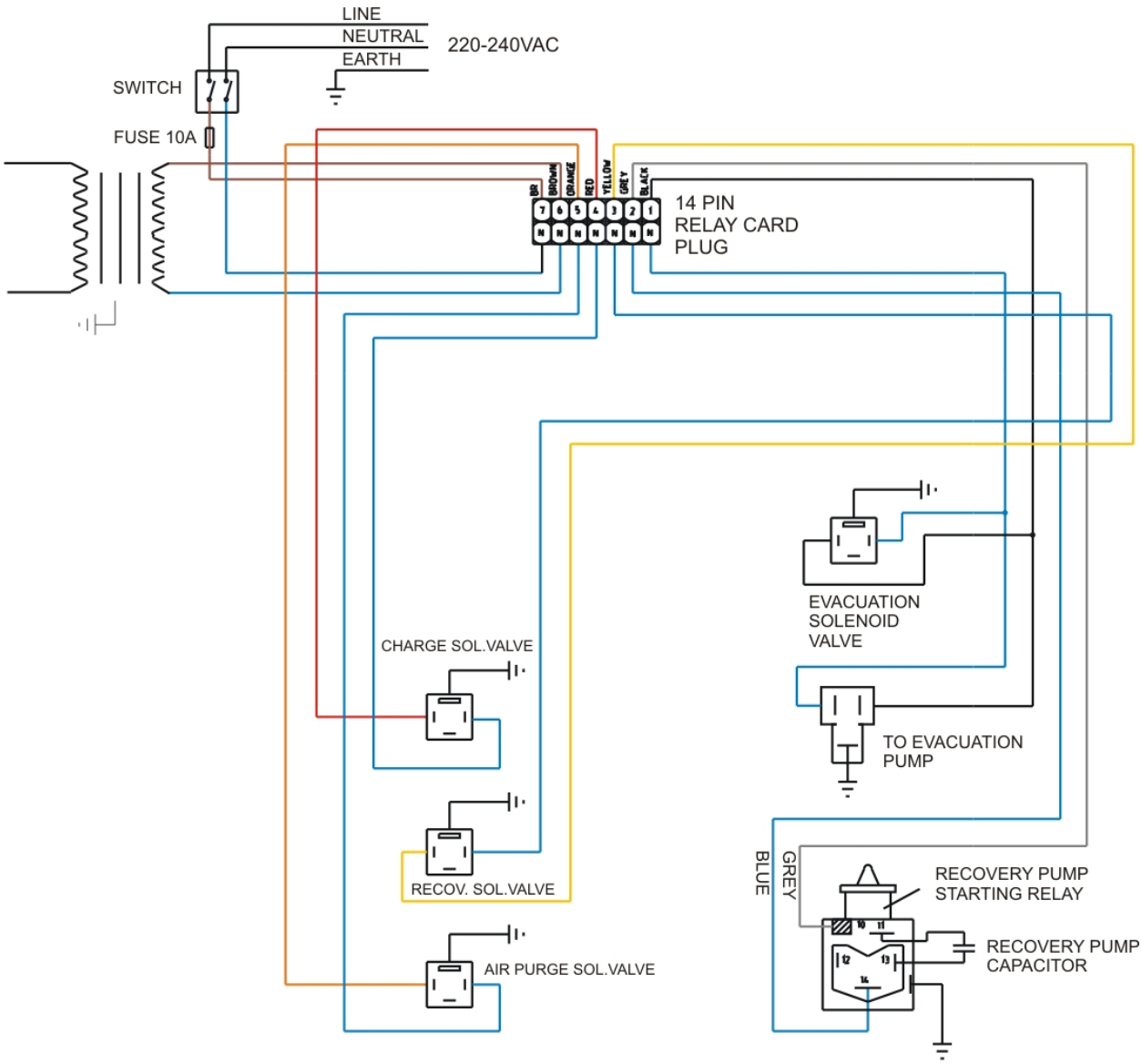
16.		**Wiring Loom - Low Voltage 12V** Code: 000564 Weight: 0.13kg Pack. Dimensions: 120 x 200 x 210mm



LOW VOLTAGE WIRING - SCHEMATICS

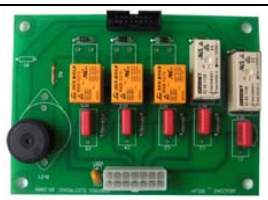
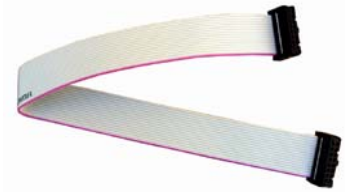
2.17. High Voltage Wiring (220-240VAC)

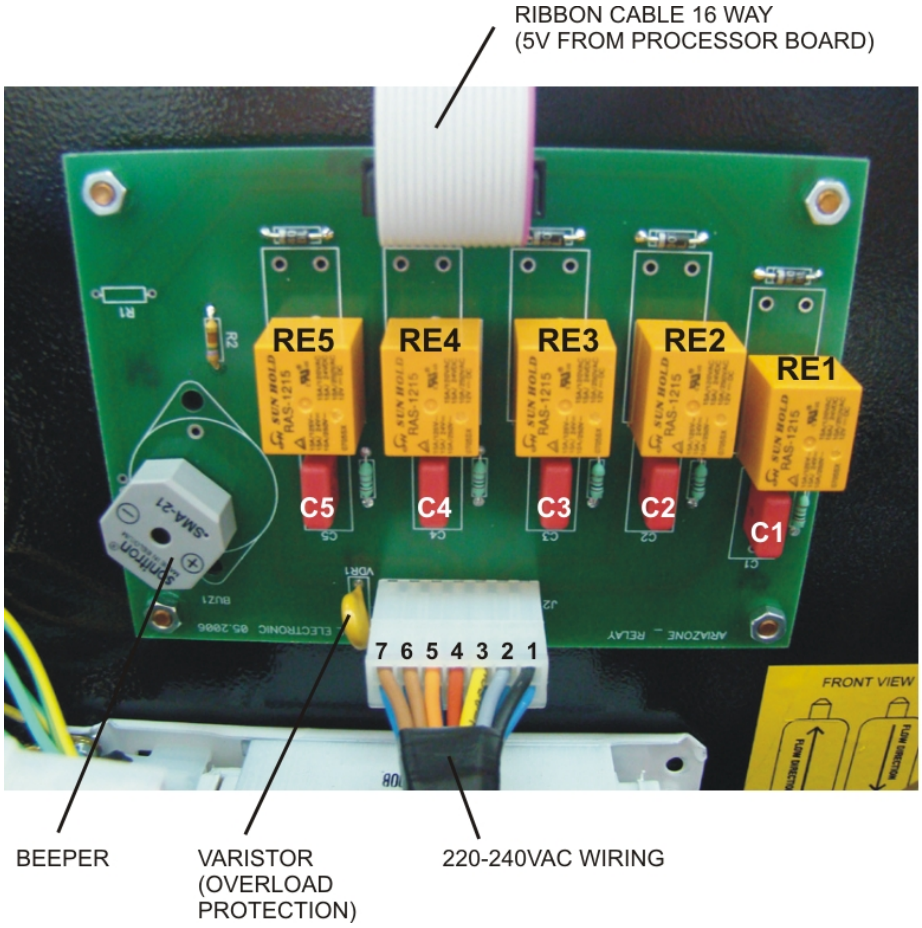
17.		**5001 Wiring Loom - High Voltage** Code: 000566 Weight: 0.4kg Pack. Dimensions: 120 x 200 x 210mm



HIGH VOLTAGE (220-240VAC) WIRING - SCHEMATICS

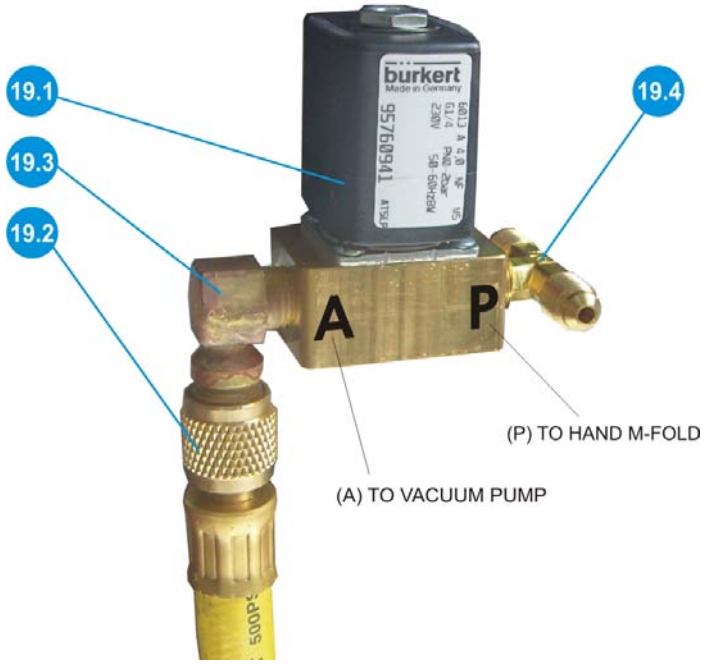
2.18. Relay Card

18.		**Relay Card** Code: 000067 Weight: 0.15kg Pack. Dimensions: 210 x 135 x 35mm
18.1.		**Ribbon cable - 16 way -** 350mm Code: 000250 Weight: 0.01kg Pack. Dimensions: 105 x 60 x 40mm



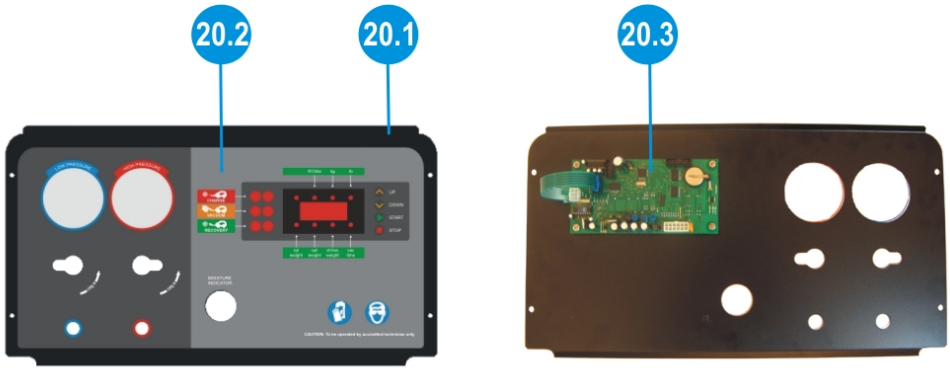
RELAYS:
RE1 - Vacuum Pump
RE2 - Recovery Pump
RE3 - Recovery Sol. Valve
RE4 - Charge Sol. Valve
RE5 - Air Purge Sol. Valve

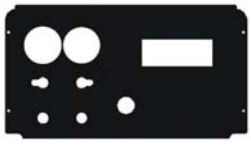
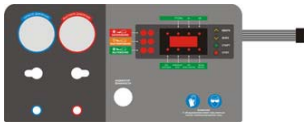
2.19. Evacuation Solenoid Valve

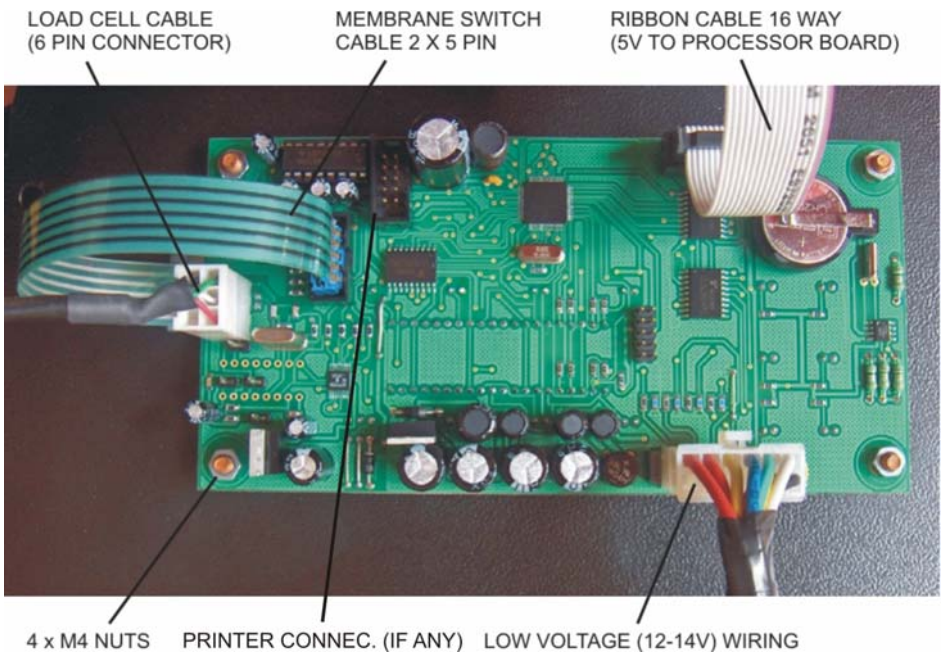


19.1.		**Evacuation Solenoid Valve - 4mm orifice** Code: 000075 Weight: 0.5kg Pack. Dimensions: 105 x 60 x 40mm
19.2.		**Evacuation Pump Hose 74cm** Code: 000006 Weight: 0.32kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)
19.3.		**1/4" BSP - 3/8" Flare Elbow** Code: 000198 Weight: 0.05kg Pack. Dimensions: 105 x 60 x 40mm
19.4.		**1/4" BSP - 1/4" Flare T-piece** Code: 000152 Weight: 0.06kg Pack. Dimensions: 105 x 60 x 40mm

2.20. Display Table



20.1.		**Steel Powder Coated Panel** Code: 000491-5 Weight: 0.12kg Pack. Dimensions: 500 x 300 x 50mm
20.2.		**Membrane Panel** Code: 000070 Weight: 0.12kg Pack. Dimensions: 500 x 300 x 50mm
20.3.		**Processor Board** Code: 000066 Weight: 0.15kg Pack. Dimensions: 210 x 135 x 35mm
20.4		**Thermal Printer – for printer model** Code: 000050 Weight: 0.15kg Dimensions: 160 x 80 x 25mm



2.21. Service Hoses with Quick Couplers

21.1.		**Service Hose (Discharge - Red 1.8m)** Code: 000556 Weight: 0.45kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)
21.2.		**Service Hose (Suction - Blue 1.8m)** Code: 000557 Weight: 0.45kg Pack. Dimensions: 250 x 350 x 50mm (plastic bag)
21.3.		**R134 Quick Coupler** - (Red) M14 female Code: 000189-2 Weight: 0.17kg Pack. Dimensions: 105 x 60 x 40mm
21.4.		**R134 Quick Coupler** - (Blue) M14 female Code: 000186-2 Weight: 0.17kg Pack. Dimensions: 105 x 60 x 40mm
21.5.		**NHBR "O" ring (5.23 x 2.62mm) -** all hoses Code: 000178-6 Weight: Pack. Dimensions:
21.6.		**Adapter 1/4" Flare to Quick Coupler** Code: 000215 Weight: 0.15kg Pack. Dimensions: 105 x 60 x 40mm

3. DISPLAY DESCRIPTIONS

HIgH PrES - High pressure in refrigerant cylinder

TArE - Calibrating the weight display to read -0.00 with an empty cylinder on platform.

SPAn - Calibrating of the refrigerant electronic scale

Err1 - Disconnected load cell lead or faulty load-cell.

CYL FULL - Refrigerant weight exceeds maximum allowable limit and will not recover any more refrigerant

nO rEF - No refrigerant pressure in service hoses, quick couplers or manifold hand valves are not open

dOnE - The selected function is completed

FILT 99Hr - Displays filter life in number of hours when machine is switched on

PAUS - Recovery pause is running, for duration of three minutes.

bUSY - Purge solenoid opens to cylinder vapour port to pressurize oil separator

CYL - This display allows the operator to set the maximum allowable refrigerant weight in cylinder.

4. SERVICE PROCEDURES

The following table describes the service intervals of the unit.

Every 100 Working Hours / Yearly - The service alarm will alert the operator for maintenance and filter replacement.

Interval	Component	Procedure
Every 100 Hr / Yearly	Main Filter Dryer	Replace
Every 100 Hr / Yearly	Primary Recovery Line Filter	Replace
Every 100 Hr / Yearly	Vacuum Pump Oil - 330ml	Drain and refill
Every 100 Hr / Yearly	Service hose "O" rings	Check / Replace
Every 100 Hr / Yearly	Gauges	Test calibration
Every 100 Hr / Yearly	Weight Platform	Test calibration

Every 300 Working Hours Service - The unit requires 100 hour service plus replacing of oil separator, primary filters and recovery pump (compressor) oil.

Interval	Component	Procedure
300 Hours	Main Filter Dryer	Replace
300 Hours	Primary Recovery Line Filter	Replace
300 Hours	Vacuum Pump Oil - 330ml	Drain and refill
300 Hours	Service hose "O" rings	Check / Replace
300 Hours	Gauges	Test calibration
300 Hours	Weight Platform	Test calibration
300 Hours	Oil Separator	Replace
300 Hours	Primary Charging Line Filter	Replace
300 Hours	Recovery Pump Oil - 400ml	Drain and refill

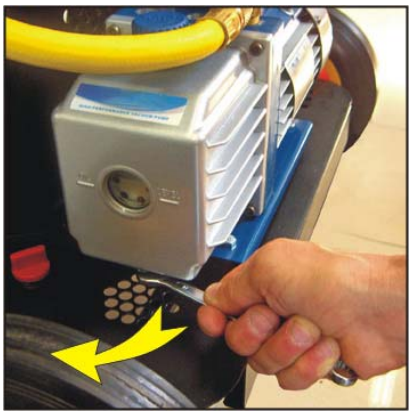
***Ariazone International recommends a record of all services on the machine to be kept*.**

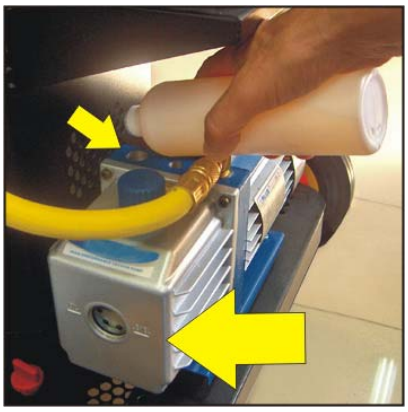
Note: Always wear appropriate protect clothing and safety glasses when servicing the machine and handling refrigerant.

	Service Kit 100Hr (Vacuum Pump Oil - 330ml, Recovery Line Filter Strainer, Main Filter Dryer, Service Hose "O" Rings) Code: 000828 Pack. Dimensions: 120 x 200 x 210mm Pack. Weight: 1.2 kg,
	Service Kit 300Hr (Vacuum Pump Oil - 330ml, Recovery Line Filter, Filter Dryer, Service Hose "O" Rings, Charging Line Filter, Oil Separator, Recovery Pump Oil - 500ml) Code: 000829 Pack. Dimensions: 120 x 200 x 210mm Pack. Weight: 2.5 kg,

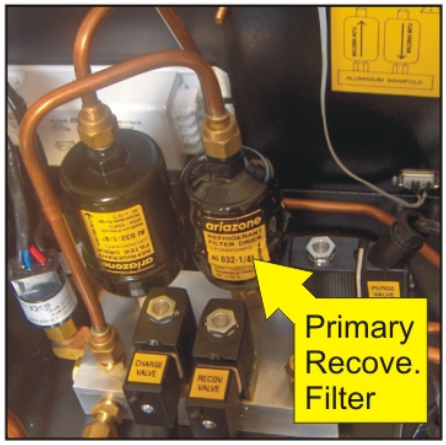
4.1. 100 Working Hours / Yearly - Service Procedure

(a) Switch ON the machine.
(b) Select RECOVERY function and allow it to run its full cycle.
Low pressure gauge should display arr. 0 Bar.
(c) Switch OFF the machine and disconnect power lead from power point.
(d) Remove top and front cover by unscrewing 5 x M6 bolts on each side.
(e) Check condition of service hoses and seals ("O" rings). Replace if necessary.
(f) Drain vacuum pump oil by removing drain plug, allow all the oil to drain in to a suitable container. Dispose of the oil properly. Re-fit drain plug and re-fill pump with Ariazone high grade vacuum pump oil. Please note**,** when the pump is operating the oil should be level with the sight glass indicator.



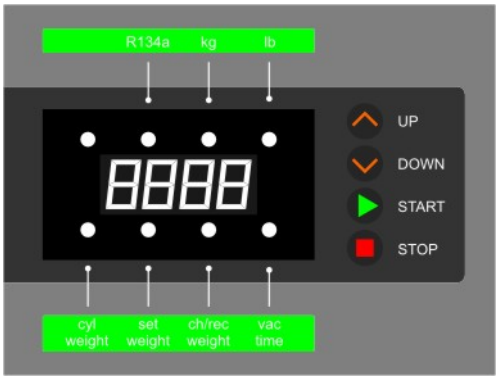


(g) Replace main filter dryer, making sure the flow direction is correct **(Arrow pointing DOWN).** Always use two wrenches for filter removal and replacement



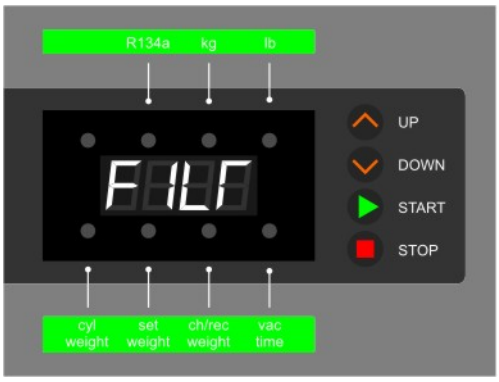
(h) Replace primary recovery line filter, making sure the flow direction is correct **(Arrow Pointing DOWN).**
(i) After the system has been completely serviced reset the filter replacement interval to 99 hours.
(j) Check load cell calibration and condition of cylinder platform. Recalibrate if necessary. Check and adjust platform stops, making sure that platform is not touching chassis.
(k) Check and test calibration of suction, discharge and cylinder gauges, adjust or replace as necessary.
(l) Run and test all functions making sure that they are operating correctly.
(m) Test all machine pipe joints and connections for any possible leaks.
(n) Check condition of power lead and main power switch, replace lead if frayed or damaged.
(o) Clean machine and refit main cover.

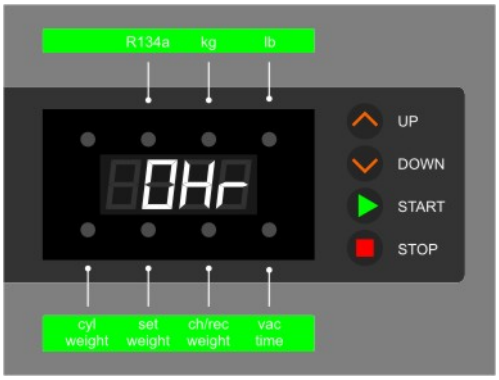
4.2. Resetting Service Time Recorder



Switch ON the unit.
The unit will perform a lamp test, whereby all LED displays are illuminated. This will enable the operator to determine if any displays have failed.

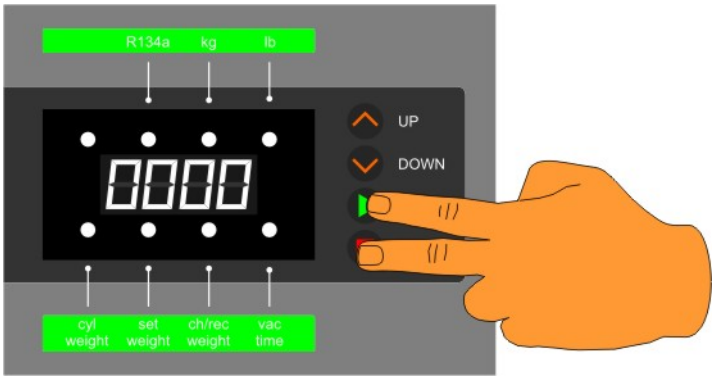
After the sequence has been completed, the display (2) will indicate FILT - -Hr. This is the number of hours left before equipment servicing is required.





When machine reaches 10Hr it will give extra beep as a warning when ever the machine is switched ON.
On 0Hr the machine will shut down. After this point the machines should be serviced before timer can be reset.

After service is finished, press the "UP" and “DOWN” buttons simultaneously and switch ON the unit (on the main power switch at back). The unit will beep, reset and show 99Hr if the procedure was correct.



4.3. 300 Working Hours - Service Procedure

(a) Switch ON the machine.

(b) Select RECOVERY function and allow it to run its full cycle. Suction pressure gauge should display 0 Bar.

(c) Switch OFF the machine and disconnect power lead from power point.

(d) Disconnect the service hoses from control panel (below hand wheels)

(e) Close the cylinder liquid and vapour valves, close the ball valve on liquid hose (red) and carefully disconnect the hoses (red and blue) from the cylinder.

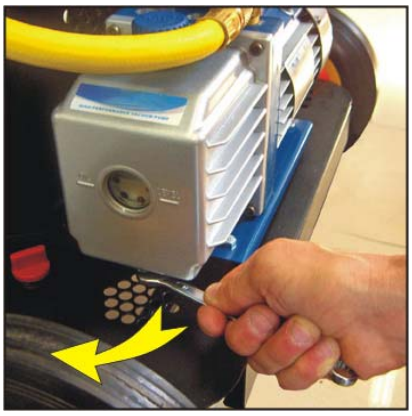
(f) Carefully purge refrigerant from cylinder liquid hose (red) by opening the ball valve on th e hose.

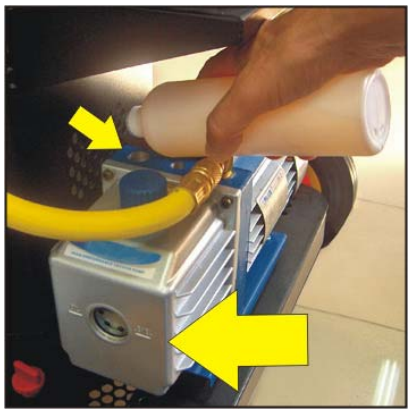
(g) Switch OFF the machine and disconnect power lead from power point.

(h) Remove top and front cover by unscrewing 5 x M6 bolts on each side.

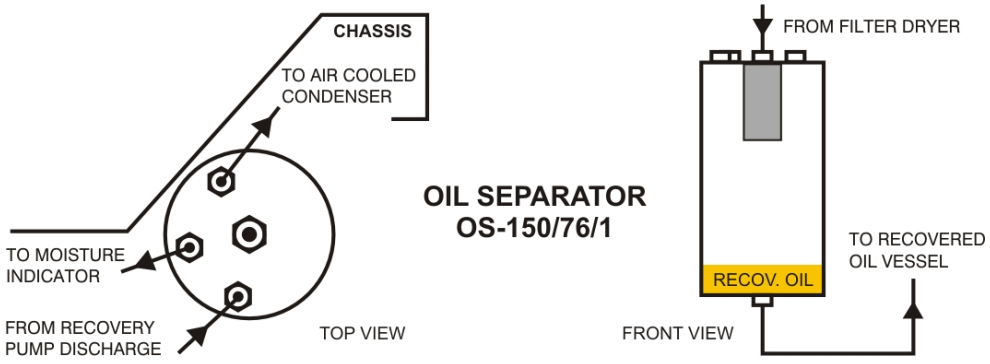
(i) Check condition of service hoses and seals ("O" rings). Replace if necessary.

(j) Drain vacuum pump oil by removing drain plug, allow all the oil to drain in to a suitable container. Dispose of the oil properly. Re-fit drain plug and re-fill pump with Ariazone high grade vacuum pump oil. Please note**,** when the pump is operating the oil should be level with the sight glass indicator.

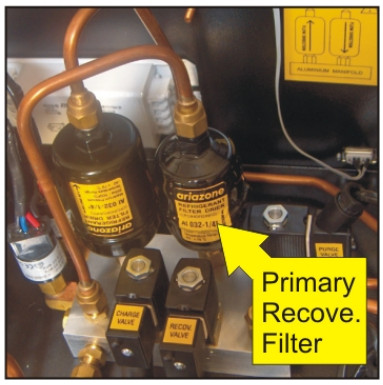




(k) Remove the filter dryer and replace the oil separator, making sure that all copper pipes are connected as per sketch below. Always use two wrenches when tighten the copper pipe 1/4" flare nuts.



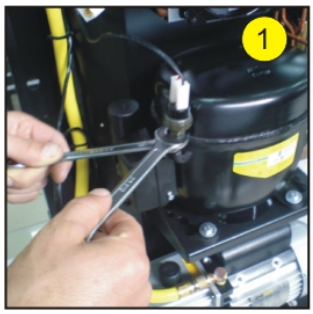
(l) Replace main filter dryer, making sure the flow direction is correct. **(Arrow pointing Down)** Always use two wrenches for filter removal and replacement

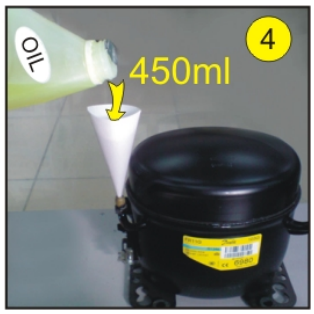


(m) Replace primary recover line filter 5.3, making sure the flow direction is correct. **(Arrow Pointing DOWN)**

(n) Replace primary charging line filter 5.4, making sure the flow direction is correct. **(Arrow pointing UP)**

(o) Drain and refill recovery pump with oil. By using two wrenches, disconnect the copper pipes 2.4 & 2.5 and pressure switch 2.3 from suction and discharge ports (1). Carefully disconnect pump wiring. By removing 4 x M6 bolts from the pump base, remove the recovery pump (2). Drain the oil (3) from suction port and refill with 450ml new oil recommended by manufacturer (4) Re-fit the recovery pump.





(p) Once the service is completed according to manufacturer specification, reset the filter replacement interval to 99 hours.

(r) Check load cell calibration and condition of cylinder platform. Recalibrate if necessary. Check and adjust platform stops and making sure platform is not touching the chassis.

(s) Check and test calibration of suction, discharge and cylinder gauges, adjust or replace as necessary.

(t) Run and test all functions making sure that they are operating correctly.

(u) Leak test all pipe joints and connections for any possible leak.

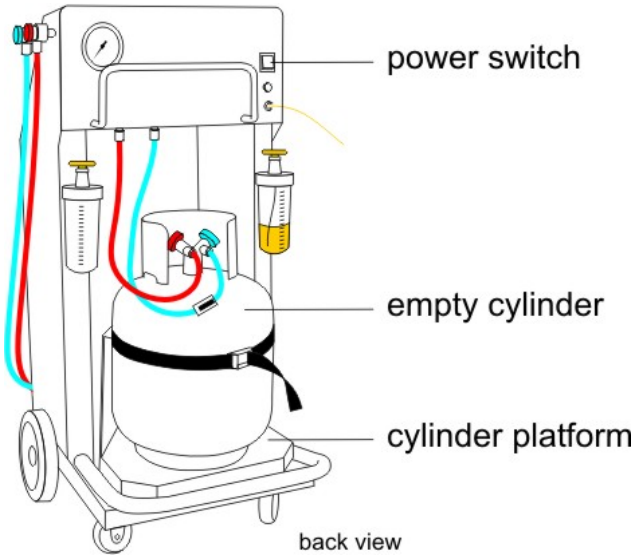
(v) Check condition of power lead and main power switch, replace lead if frayed or damaged.

(w) Clean machine and refit main cover.

5. CALIBRATION AND SETUP PROCEDURES

5.1. Load Cell Calibration procedures

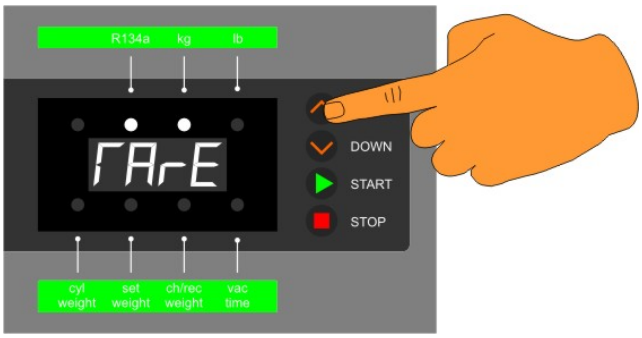
Step 1 – Tare *(Calibrating the zero weight display 0.00kg with the empty cylinder on platform)*



Place empty cylinder or similar weigh as unit empty cylinder) on the cylinder platform.

Connect the cylinder hoses to the cylinder.

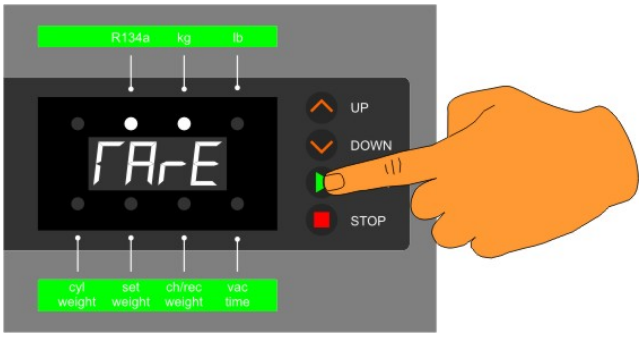
Check that cylinder and the platform are free (not touching the body of the machine) and the strap is properly secured.



Press and hold depressed the "UP" button and switch ON the unit (on the main power switch at back).

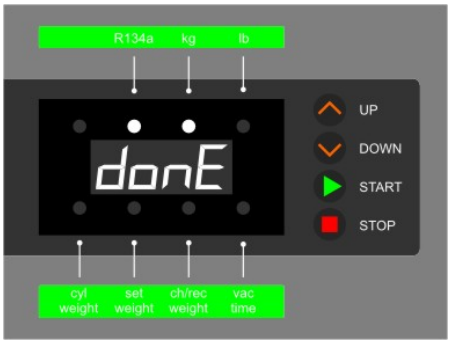
The display will indicate TARE.

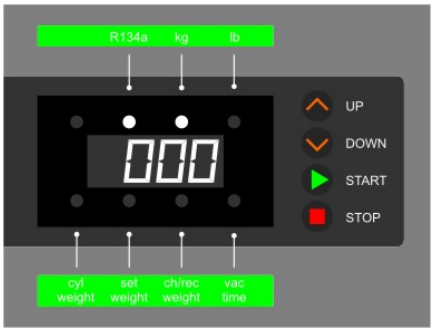
Now, release 'UP' button.



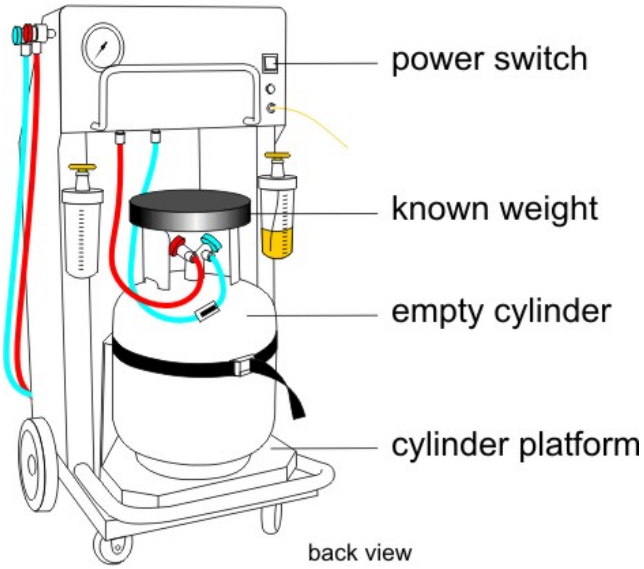
After BEEP sound, press 'START' button to confirm the TARE. The display will indicate “DONE”.
Note: If “DONE” is not indicated, perform the function again.

The display will indicate 0.00kg which is the right weight because the cylinder is empty.



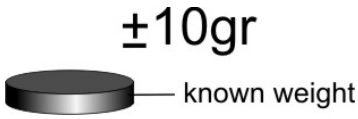


Step 2 - Span *(Calibrating maximum weigh display)*

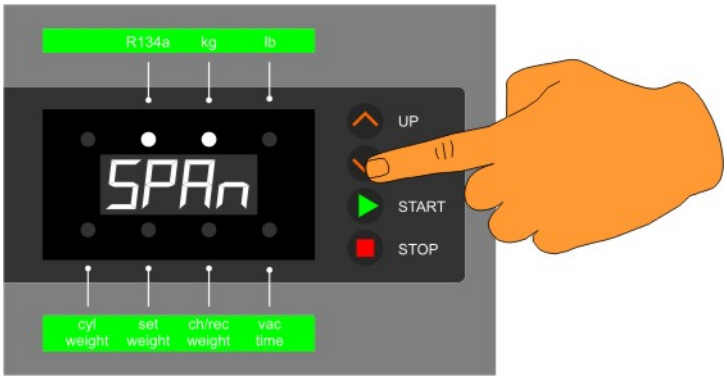


Place known weight on top of empty cylinder. Known weigh should be minimum 10kg (in our example 20.00kg).

Operator should know the right amount (+-10gr) of the weigh he is using.

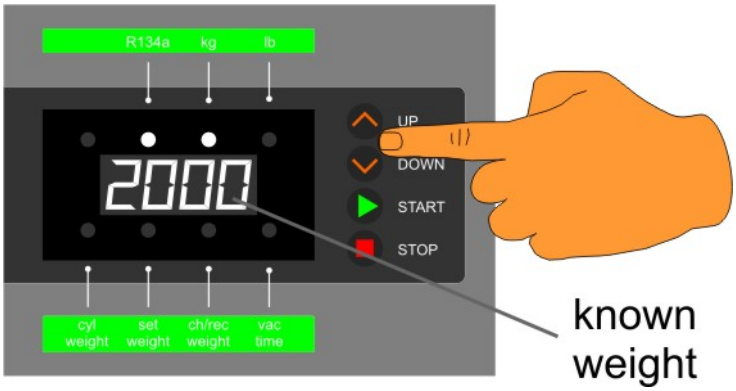


Make sure it is placed centrally on the cylinder and platform.



Press and hold depressed the "DOWN" button and switch ON the unit (on the main power switch at back).

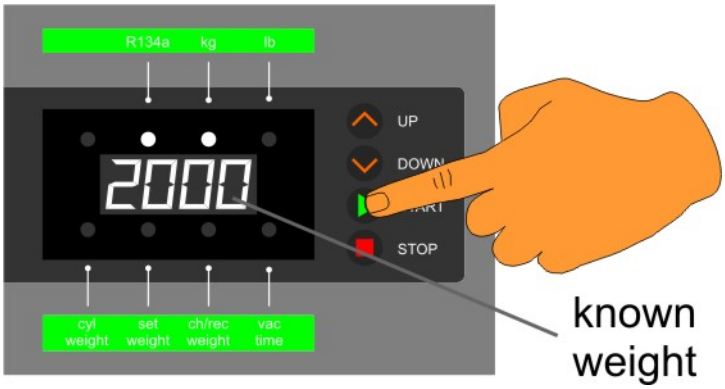
The display will indicate SPAN.

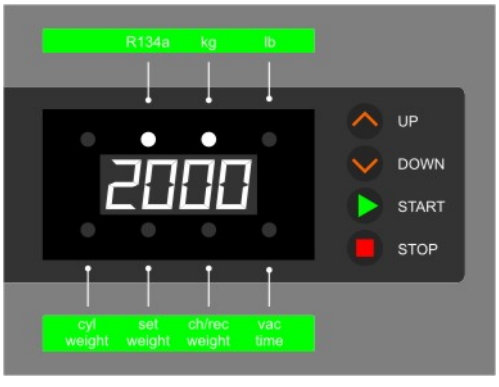


By pressing “UP” or “DOWN” buttons, set the amount of the known weight.

When display indicates the selected amount press “START” button to confirm the calibration.

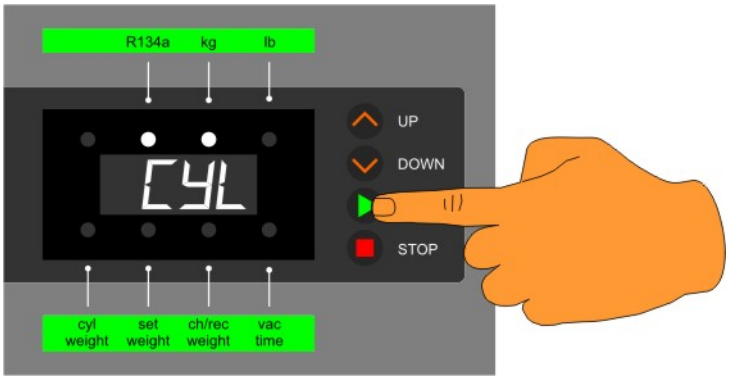
Take off the weight on the top of the cylinder (without the weight machine should indicate arr. 0.00kg).





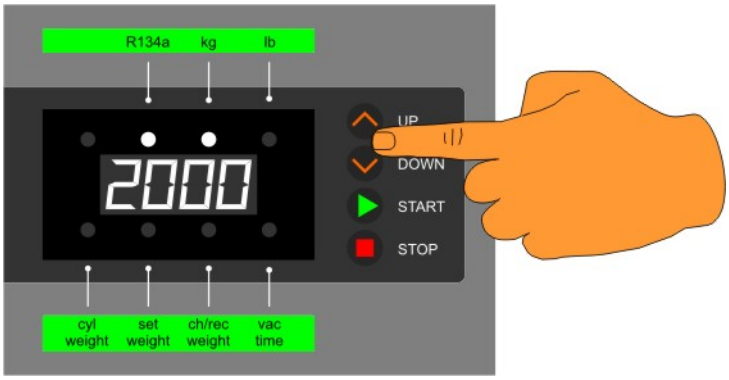
5.2 Set up of maximum allowable refrigerant weight in cylinder)

It is recommended that the recovery cylinders are filled to 80% of their capacity. Maximum cylinder weigh set up function allows automatic protection to prevent the storage cylinder from being overfilled.



Press and hold depressed the "START" button and switch ON the unit (on the main power switch at back).

The display will indicate CYL.

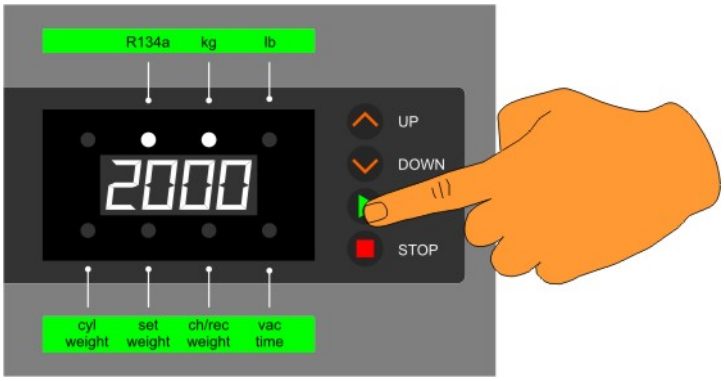


By pressing “UP” or “DOWN” button, set the maximum weight to be 80% of the cylinder capacity.

For the 12kg cylinder set maximum 10kg.

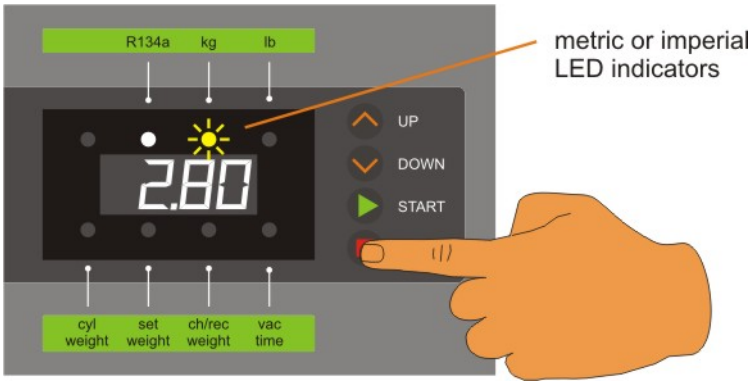
For 25kg cylinder set max. 20kg.

For 27kg cylinder, set max 22kg…

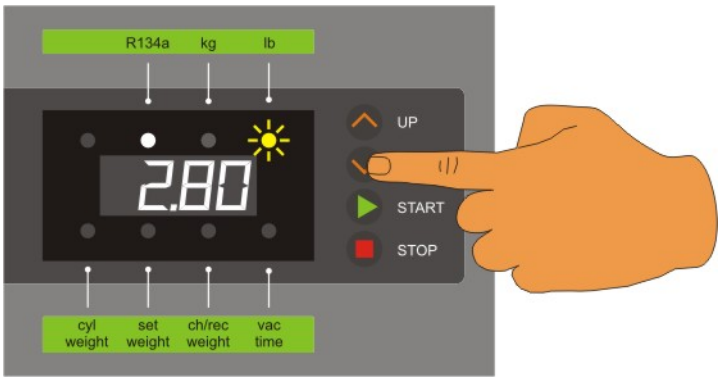


When display indicate the selected amount press “START” button to confirm the maximum cylinder set up.

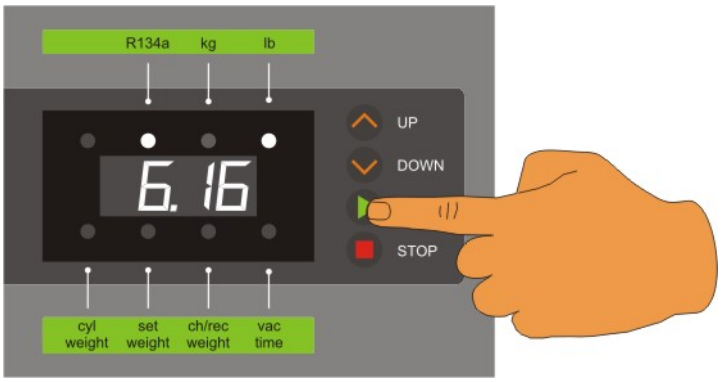
5.3. Set metric or Imperial system (Kg or Lb)



While machine in “stand by” press and keep depressed “STOP” button for few seconds until LED indicator start to flesh.



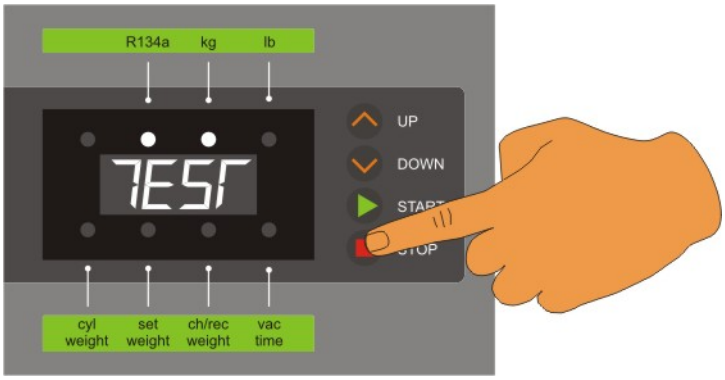
Press “DOWN” key to change from Kg to Lb (or opposite).



Press “START” key to confirm selected measurement unit.

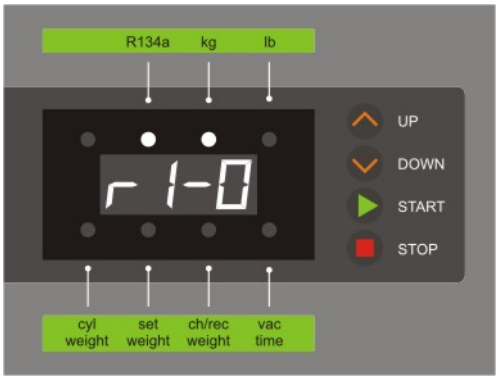
5.4. Relays testing

Use this mode to check the wiring, relays, solenoid valves, vacuum pump and recovery pump for electrical continuity.

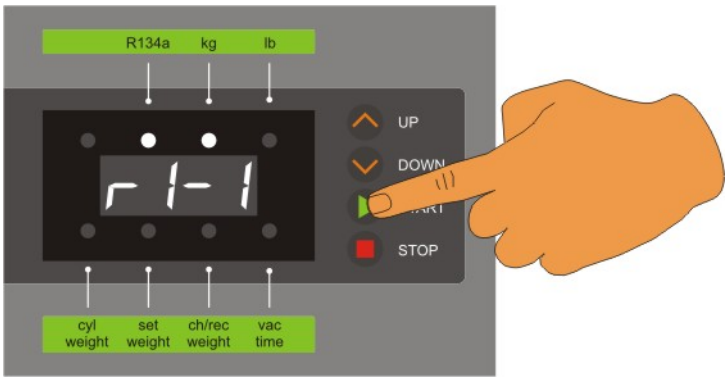


Press and hold depressed the "STOP" button and switch ON the unit (on the main power switch at back).

After 5 seconds the display will read "TEST".



Press "UP" key twice, display will read r1-0, which means relay test function is initiated.

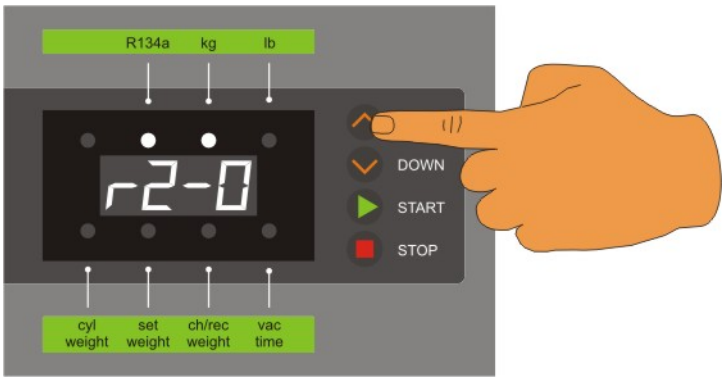


Individual relays can be selected by pressing the "UP" or "DOWN" key.

To activate relays press "START" key.

To skip press "STOP" key

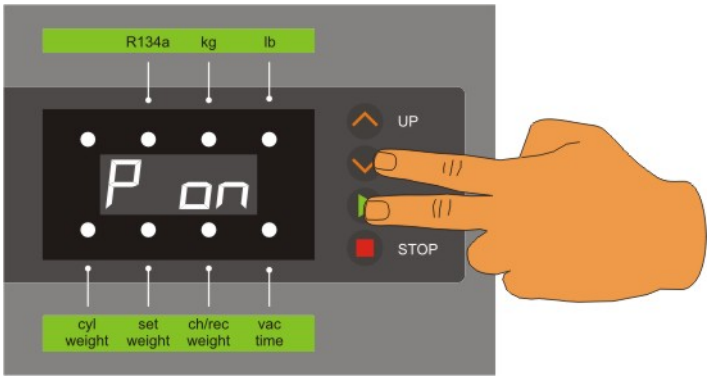
NOTE: Do not run relay number 2 (which controls recovery pump) for more than few seconds.



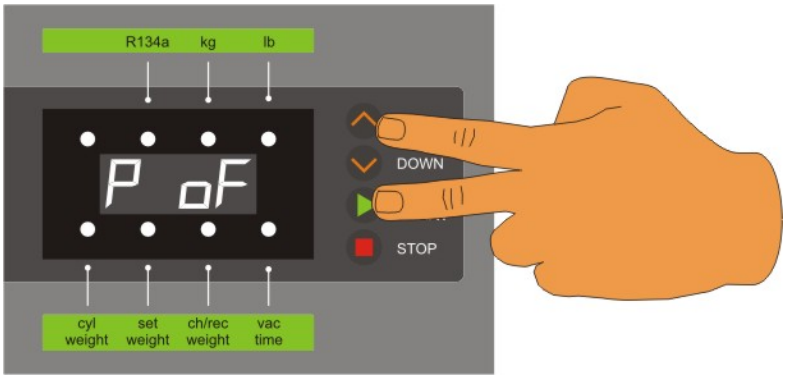
Relays are numbered as follows:

r1 - 0/1 (off/on) - Evacuation Solenoid Valve and Vacuum Pump
r2 - 0/1 (off/on) - Recovery Pump
r3 - 0/1 (off/on) - Recovery Sol. Valve
r4 (**off**)
r5 (**off**)
r6 (**off**)
r7 - 0/1 (off/on) - Charge Sol. Valve
r8 - 0/1 (off/on) - Air Purge Solenoid Valve

5.5 Activating the printer software (for printer model only)

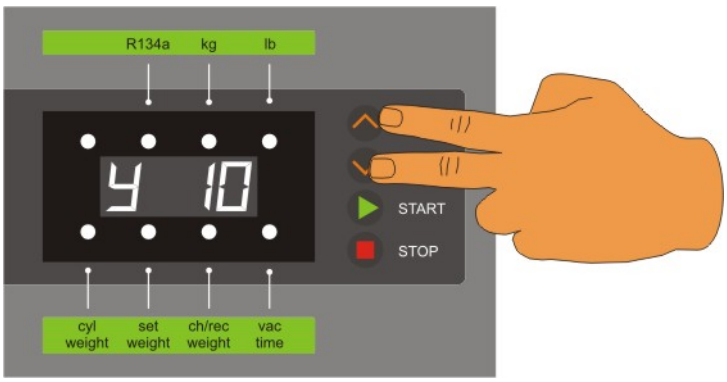


To activate printer software press and hold depressed the "START" and “DOWN” button and switch ON the unit (on the main power switch at back).



To deactivate printer software press and hold depressed the "START" and “DOWN” button and switch ON the unit (on the main power switch at back).

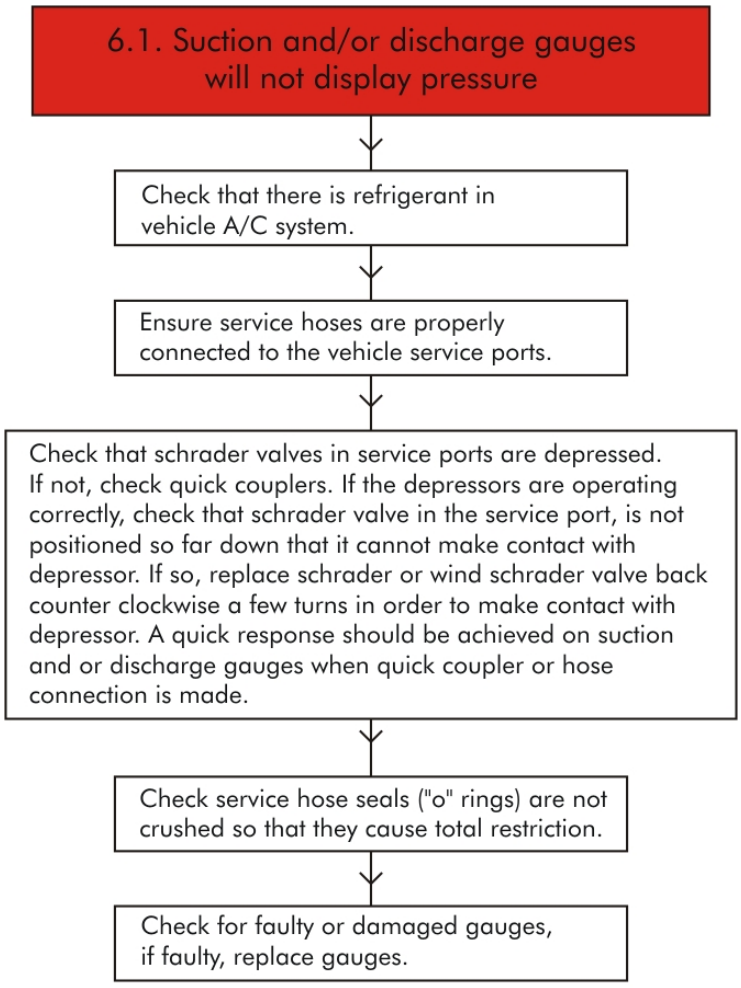
5.6 Set time and date on printing report (for printer model only)

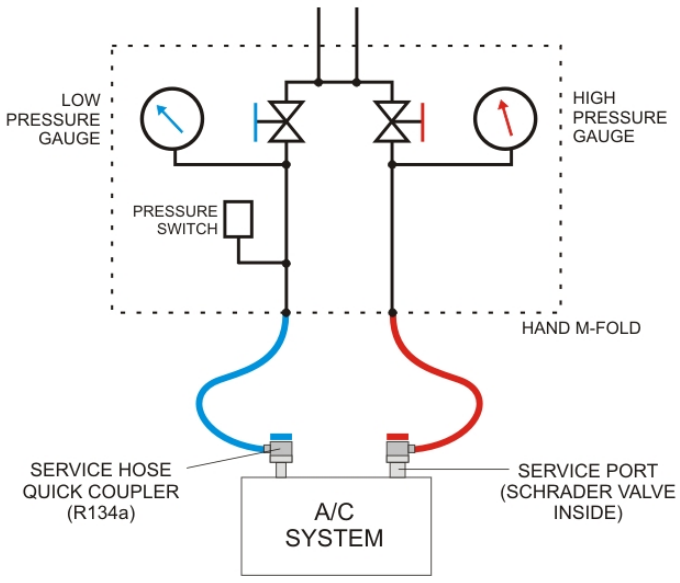


To activate printer software press and hold depressed the "UP" and “DOWN” button and switch ON the unit (on the main power switch at back).
Set Year, Month, Date, Hour, Minutes.

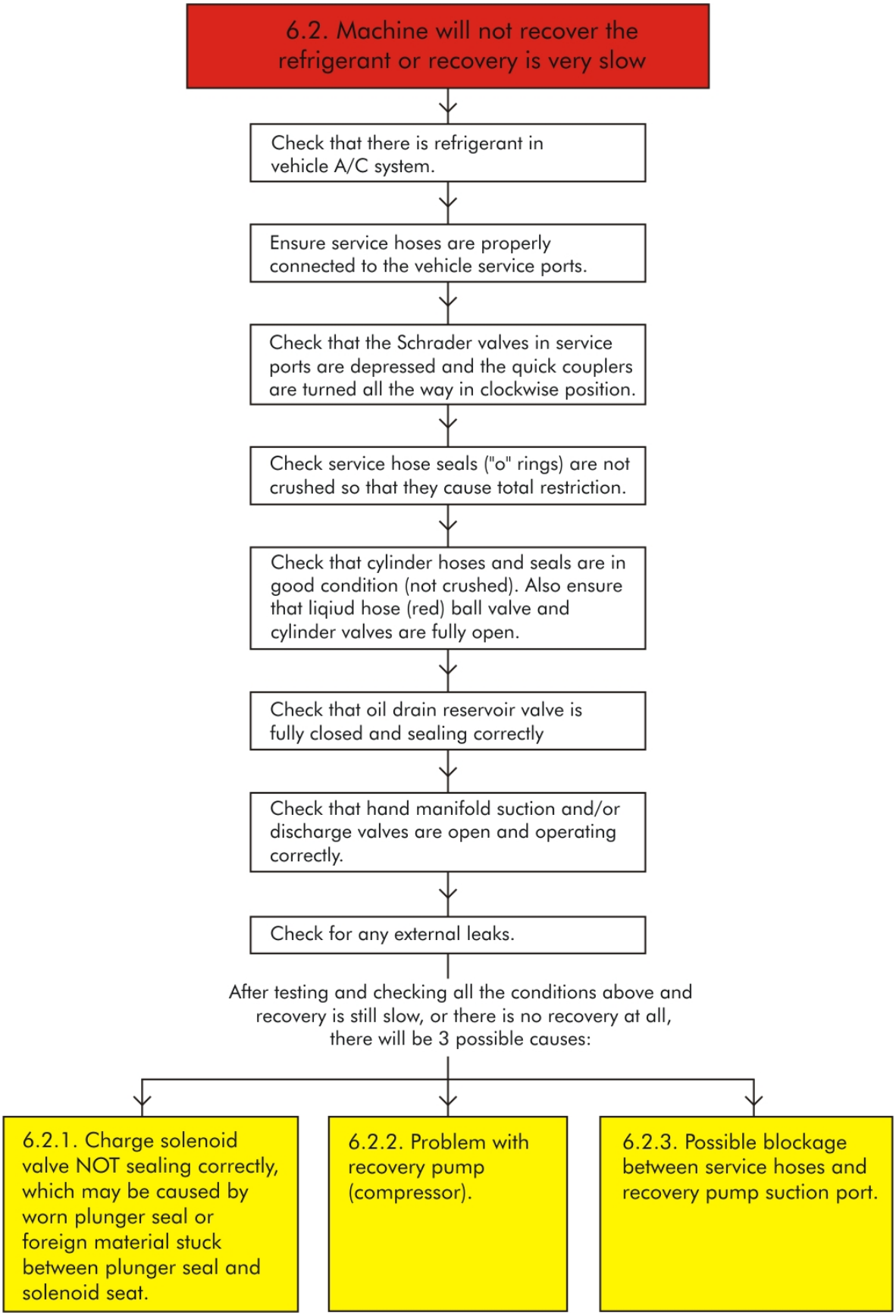
6. TROUBLESHOOTING - SOLUTIONS

6.1. Suction and/or discharge gauges will not display pressure


6.1. Suction and/or discharge gauges will not display pressure
Check that there is refrigerant in vehicle A/C system.
Ensure service hoses are properly connected to the vehicle service ports.
Check that schrader valves in service ports are depressed. If not, check quick couplers. If the depressors are operating correctly, check that schrader valve in the service port, is not positioned so far down that it cannot make contact with depressor. If so, replace schrader or wind schrader valve back counter clockwise a few turns in order to make contact with depressor. A quick response should be achieved on suction and or discharge gauges when quick coupler or hose connection is made.
Check service hose seals ("o" rings) are not crushed so that they cause total restriction.
Check for faulty or damaged gauges, if faulty, replace gauges.

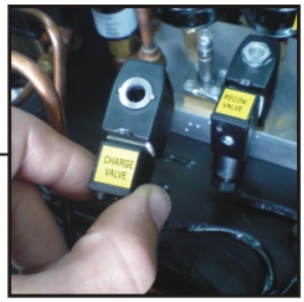


6.2. Machine will not recover the refrigerant or recovery is very slow

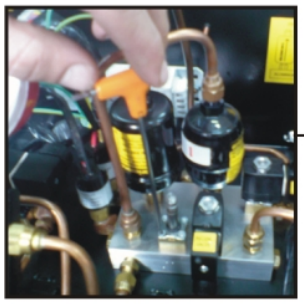

6.2. Machine will not recover the refrigerant or recovery is very slow
Check that there is refrigerant in vehicle A/C system.
Ensure service hoses are properly connected to the vehicle service ports.
Check that the Schrader valves in service ports are depressed and the quick couplers are turned all the way in clockwise position.
Check service hose seals ("o" rings) are not crushed so that they cause total restriction.
Check that cylinder hoses and seals are in good condition (not crushed). Also ensure that liqiud hose (red) ball valve and cylinder valves are fully open.
Check that oil drain reservoir valve is fully closed and sealing correctly
Check that hand manifold suction and/or discharge valves are open and operating correctly.
Check for any external leaks.
After testing and checking all the conditions above and recovery is still slow, or there is no recovery at all, there will be 3 possible causes:
6.2.1. Charge solenoid valve NOT sealing correctly, which may be caused by worn plunger seal or foreign material stuck between plunger seal and solenoid seat.
6.2.2. Problem with recovery pump (compressor).
6.2.3. Possible blockage between service hoses and recovery pump suction port.

6.2.1. Incorrect sealing between plunger seal and seat into the CHARGE solenoid valve caused by foreign material or damaged seal

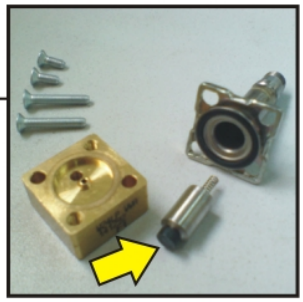
- Purge the refrigerant from suction and discharge service hoses.
- Close cylinder liquid and vapor valves and carefully disconnect red and blue hoses from cylinder.
- Carefully purge the refrigerant from cyl. liquid hose (red) by opening the ball valve.
- Disconnect power lead from power point
- Remove machine main cover.
- Remove charge valve solenoid coil



- Remove solenoid valve body from aluminium manifold.



- Dismantle plunger housing from solenoid valve body and inspect seal condition and for any foreign material causing the seal not to seal correctly.



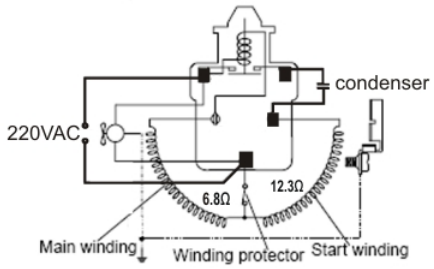
- Refit or replace charge solenoid valve, service hoses and cylinder hoses.
- Open cylinder vapor and liquid valves including cylinder hose ball valve.
- Open hand valves on machine console, there should not be any pressure increase on front suction and discharge gauges. If there is a pressure increase, repeat step 1 to 10.

6.2.2. Problem with Recovery Pump
Testing Recovery Pump

Select recovery function and check that recovery pump is running.

NO

If recovery pump is not running, carefully remove pump's terminal protection cover, (CAUTION starting capacitor remains charged with very high voltage) select and start recovery function and by using a multi meter, check voltage between grey wire (active) and blue wire (neutral). Multi meter should display mains voltage.



If there is no supply at recovery pump terminal block, check for proper connection at the 14way multi plug on relay board (Refer to wiring diagram). Ensure that all-terminal pins on multi plug are properly inserted into insulator. Check that there is constant main power supply to recovery pump relay (RE-2). If there is mains power in, but no power out when recovery function is activated, replace relay board. (To test power supply, refer to the wiring diagram).

If the voltage is of the correct value, replace recovery pump and filter drier.

YES

If the recovery pump is running, stop the recovery process

Purge the refrigerant from suction and discharge service hoses.

Close cylinder liquid and vapor valves and disconnect the hoses from the cylinder.

Purge refrigerant from hose by opening the ball valve.

Disconnect suction and discharge pipes on recovery pump.

By using the 1/4" flare to snap on adaptor supplied, connect it to the suction port on recovery pump, connect suction coupler to the adaptor. Make sure discharge pipe is disconnected from discharge pump port.

By using TEST mode (see instructions bellow), start recovery pump, close the blue hand valve on console, open the quick coupler flow and note readings on low pressure gauge. The gauge should show vacuum of minim. -0.7 Bar.
Starting the compressor by using TEST mode:
- Switch OFF the power.
- While pressing STOP key, SWITCH ON the unit. Wait until display show TEST.
- With UP key select r 2 - 0 and press START.

Now display should show r 2 - 1 and recovery pump should start running.

If this amount of vacuum is not achieved replace recovery pump and filter dryer.

6.2.3. Possible blockage between service hoses and recovery pump suction port.

Follow next steps to check the flow between service hoses and recovery pump.

Purge the refrigerant from suction and discharge service hoses.

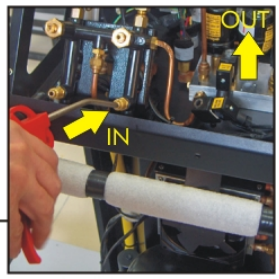
Close cylinder liquid and vapor valves and disconnect the hoses from the cylinder. Purge refrigerant from liquid (red) hose by opening the ball valve.

Disconnect power lead from power point

Disconnect suction and discharge pipes on recovery pump.

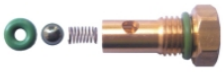
Remove recovery solenoid valve from alum. manifold
There are two 2.5mm ports on alum. manifold bellow the solenoid valve.

Remove main filter dryer and seal both filter ports.

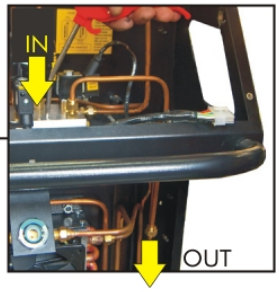


Step 1- Testing the hand m-fold valves
Apply a pressure of approximately 4-6 Bar, using clean compressed air on suction side of hand manifold. An air flow should be achieved from hand manifold suction port to aluminium manifold 2.5mm solenoid valve port.

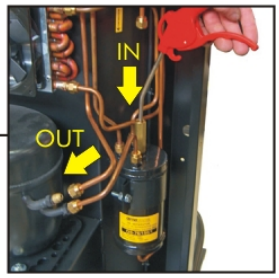
ONE-WAY VALVE



Step 2 - Testing the recovery one-way valve inside aluminium m-fold
Apply a pressure of approximately 4-6 Bar, using clean compressed air on 2.5mm solenoid valve port on al. block. Good air flow should be achieved between manifold port and main filter inlet pipe. If not, remove the one-way valve situated inside the alum. manifold. Remove the one-way valve brass plug and inspect the condition of the steel ball seal and spring.



Step 3 - Testing the oil separator
Apply a pressure of approximately 4-6 Bar, using clean compressed air on the oil separator. Good air flow should be achieved on the suction pipe that connects to the recovery pump.
If flow is achieved remove and replace oil separator.

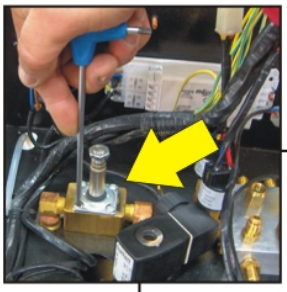


6.3. Machine will not evacuate

6.3. Machine will not evacuate

Check that the vacuum pump is running. If not, check that the power switch on the pump motor is in the ON position. If the pump is not running test voltage on the three-pin power supply plug leading to the vacuum pump motor, with a multi meter. If the voltage supply on plug is of the correct value, test vacuum pump motor on/off switch for correct operation. If there is no voltage in the vacuum pump power supply three-pin plug, check the relay board.

Check vacuum pump oil level and condition of oil, if necessary, drain old oil and refill with fresh oil and re-test. Disconnect the vacuum hose from vacuum pump and check the vacuum on a hose connection point.



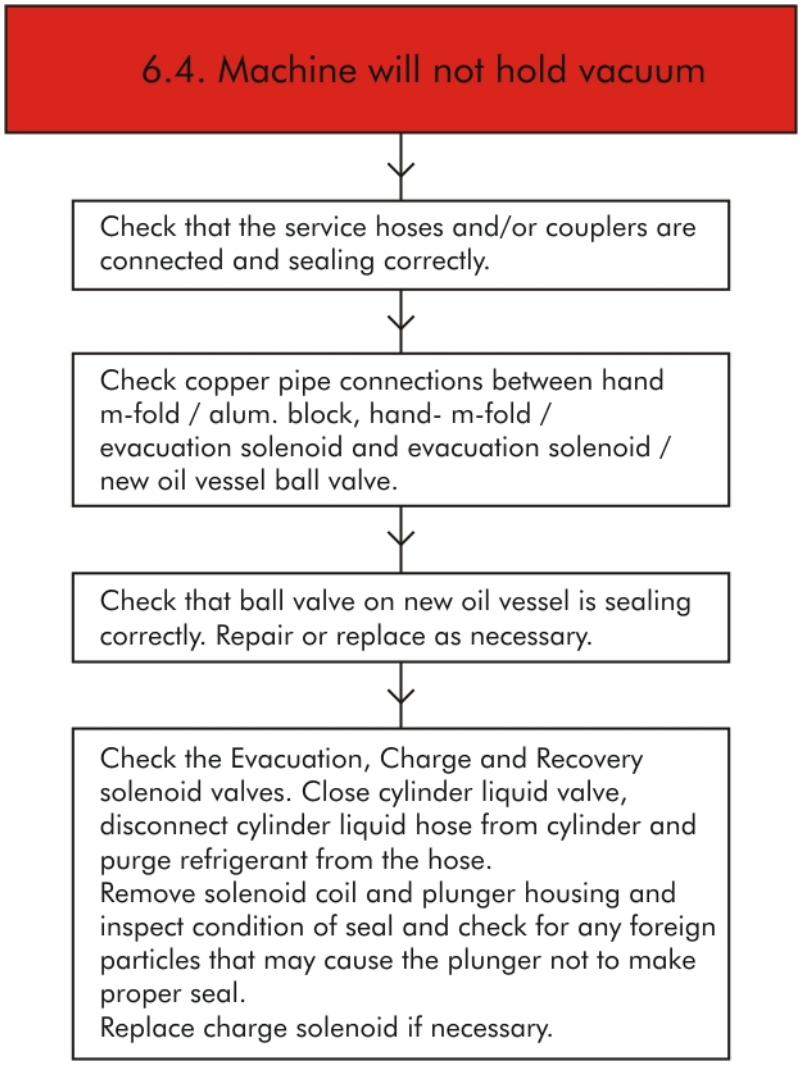
Check the evacuation solenoid for correct operation. Test for correct power supply at evacuation solenoid coil. If power supply is of the correct value, remove solenoid coil and plunger housing and check condition of plunger seal, replace assembly if necessary.

Check that hand manifold suction and discharge valves are open and operating correctly.

Check service hoses condition. Replace or repair leaking service hoses or seals.

If vacuum has still not improved, close cylinder liquid valve, disconnect cylinder liquid hose from cylinder and purge refrigerant from hose, close hose shut off valve, start evacuation function and check vacuum, if this improves vacuum level, remove cover from machine, carefully remove charge solenoid coil and plunger housing, inspect condition of seal and check for any foreign particles that may cause the plunger not to make proper seal. Replace charge solenoid if necessary.

6.4. Machine will not hold vacuum


6.4. Machine will not hold vacuum
Check that the service hoses and/or couplers are connected and sealing correctly.
Check copper pipe connections between hand m-fold / alum. block, hand- m-fold / evacuation solenoid and evacuation solenoid / new oil vessel ball valve.
Check that ball valve on new oil vessel is sealing correctly. Repair or replace as necessary.
Check the Evacuation, Charge and Recovery solenoid valves. Close cylinder liquid valve, disconnect cylinder liquid hose from cylinder and purge refrigerant from the hose.
Remove solenoid coil and plunger housing and inspect condition of seal and check for any foreign particles that may cause the plunger not to make proper seal.
Replace charge solenoid if necessary.

6.5. Machine will not charge

6.5. Machine will not charge

Check that the refrigerant cylinder liquid valve and liquid hose ball valve are fully open.

Check that there is sufficient refrigerant in cylinder, minimum of 2kg (5lb). Test calibration if necessary.

Check that cylinder pressure is registering on suction or discharge gauge, dependent on which side you are charging from.

If cylinder pressure is registering on the suction or discharge gauge, test for a restriction between the hand m-fold valve and vehicle A/C system. Test the following:
- A/C system, service port valves (not depressed)
- Service hose seals (restricting flow)
- Quick couplers (R134a).

If cylinder pressure is not registering on suction or discharge gauges, check the following.
- Check for faulty (crushed) cylinder liquid hose seals.
- Check for faulty cylinder valve, and make sure it is open and refrigerant is flowing.
- Check for faulty manifold hand valves, and making sure the appropriate valve is open.
- Check for faulty charge solenoid coil. Make sure power is switched off, remove charge solenoid coil by removing the retaining nut. Use multi-meter to check coil continuity and resistance (resistance should be approximately 4.3kO). If the coil is faulty, replace solenoid assembly. If not check the relay card.
- Check the one way valve inside the alum. block.

ONE WAY VALVE

Bad q-lity R134a (R22 inside) can damage the "o" ring

6.6. Machine is slow in charging

6.6. Machine is slow in charging

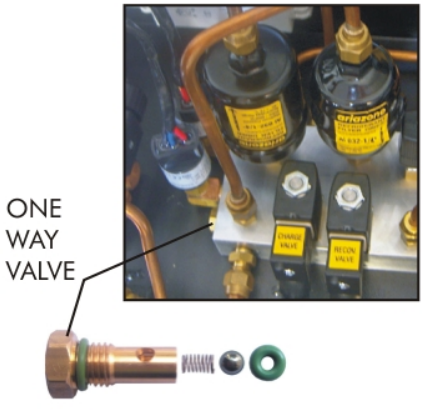
Check that there is sufficient refrigerant in cylinder, minimum of 2kg (5lb).

Cylinder pressure may be low due to ambient conditions (low temperatures).
If charging through the discharge side of machine with vehicle engine stationary is slow, close discharge hand valve, start engine and the air conditioning system may charged through the suction side of the a/c system.
Alternatively a heater band may be fitted to refrigerant cylinder.
(Optional extra, contact distributer or Ariazone).

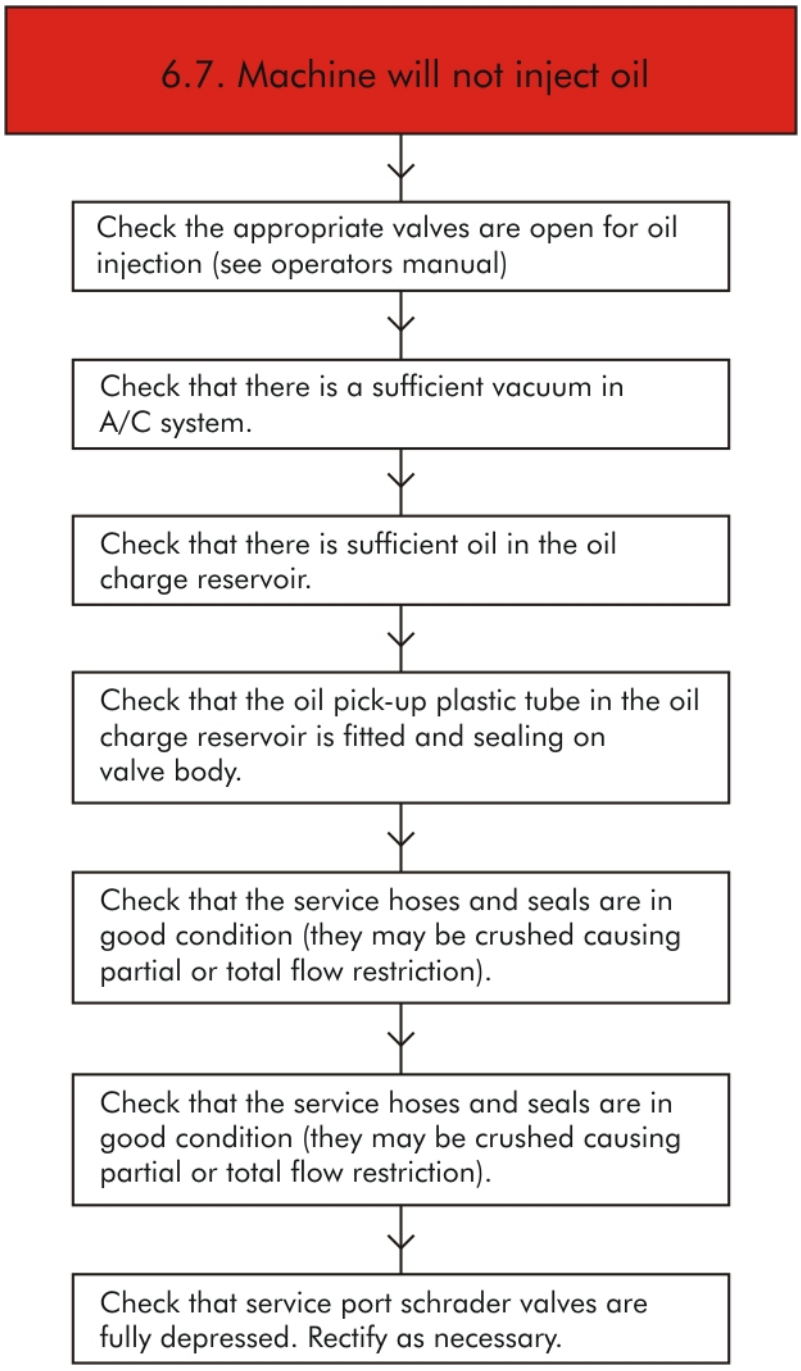
Check that the service hoses and seals are in good condition. Make sure they are not crushed thus causing refrigerant flow restriction.
Replace as necessary.

Check that there is good access to A/C system through service ports (schrader valves may not be fully depressed). Replace schrader valves if necessary.

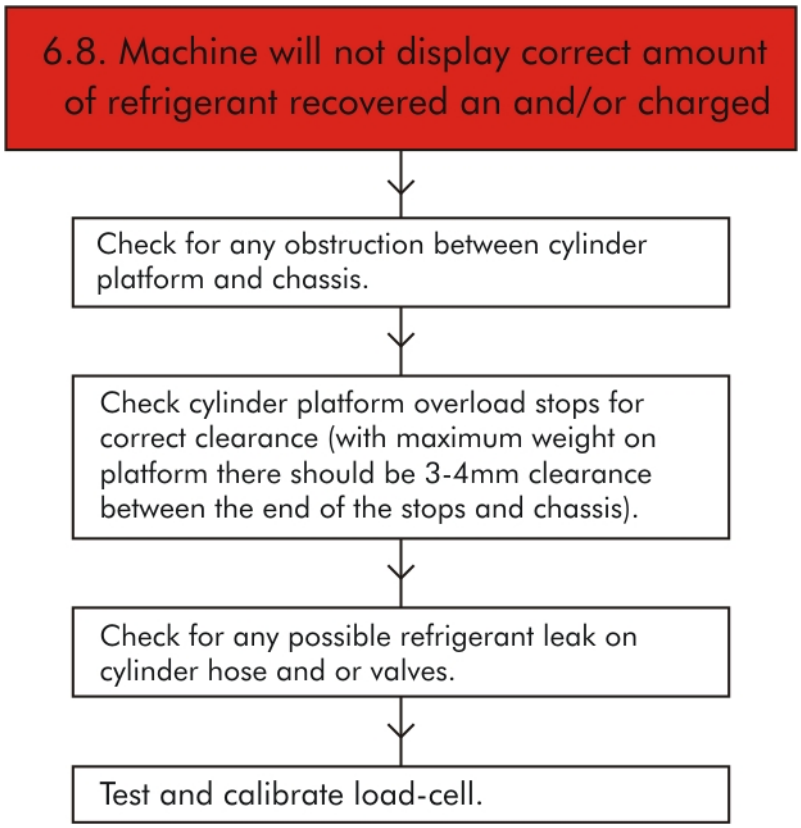
Check the one way valve inside the aluinium maifold.

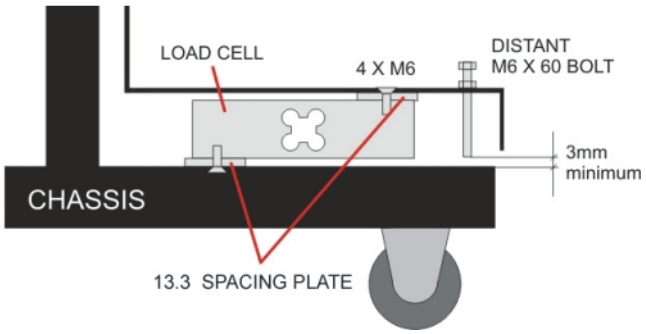


6.7. Machine will not inject oil


6.7. Machine will not inject oil
Check the appropriate valves are open for oil injection (see operators manual)
Check that there is a sufficient vacuum in A/C system.
Check that there is sufficient oil in the oil charge reservoir.
Check that the oil pick-up plastic tube in the oil charge reservoir is fitted and sealing on valve body.
Check that the service hoses and seals are in good condition (they may be crushed causing partial or total flow restriction).
Check that the service hoses and seals are in good condition (they may be crushed causing partial or total flow restriction).
Check that service port schrader valves are fully depressed. Rectify as necessary.

6.8. Machine will not display correct amount of refrigerant recovered an and/or charged


6.8. Machine will not display correct amount of refrigerant recovered an and/or charged
Check for any obstruction between cylinder platform and chassis.
Check cylinder platform overload stops for correct clearance (with maximum weight on platform there should be 3-4mm clearance between the end of the stops and chassis).
Check for any possible refrigerant leak on cylinder hose and or valves.
Test and calibrate load-cell.



6.9. Machine stops and displays high pressure when recovering

6.9. Machine stops and displays high pressure when recovering

Check that the cylinder liquid valve is fully open.

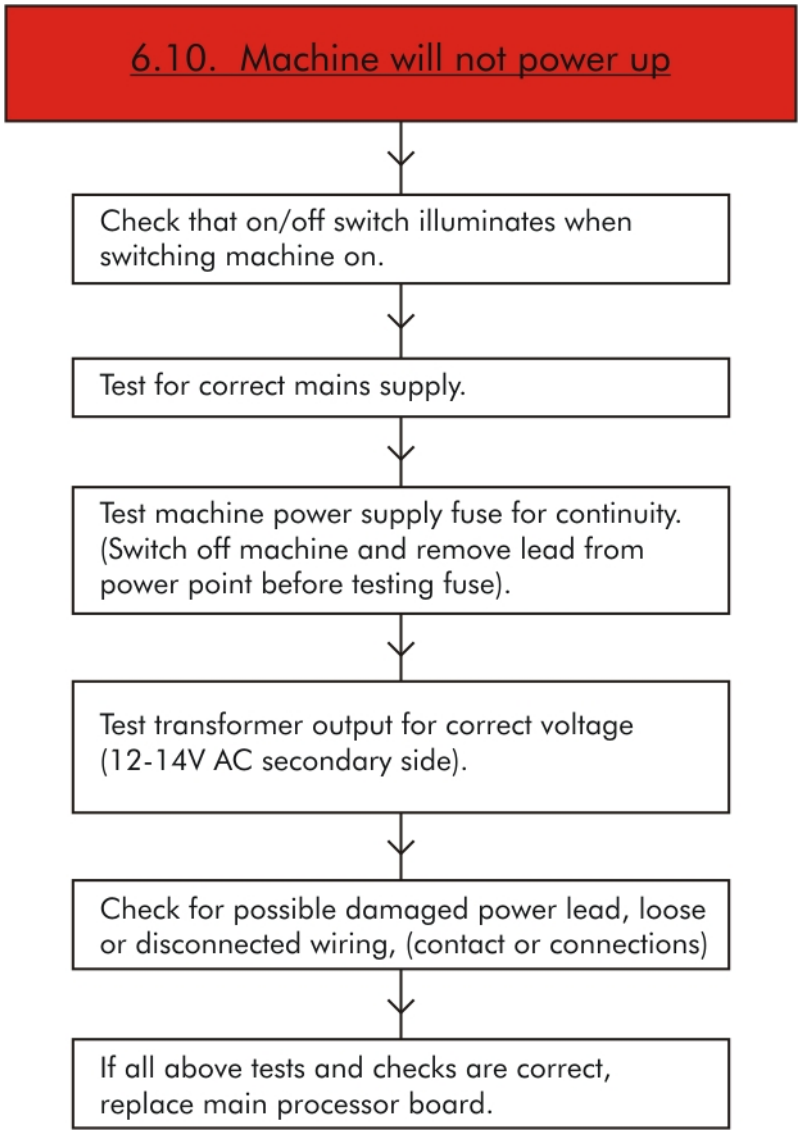
Check that the cylinder liquid hose, ball valve is fully open and hose seals are in good condition.

Check non-condensable indicator for refrigerant contamination in cylinder. Excessive air will cause pressure increase in cylinder. Open air bled valve to purge air, if necessary.

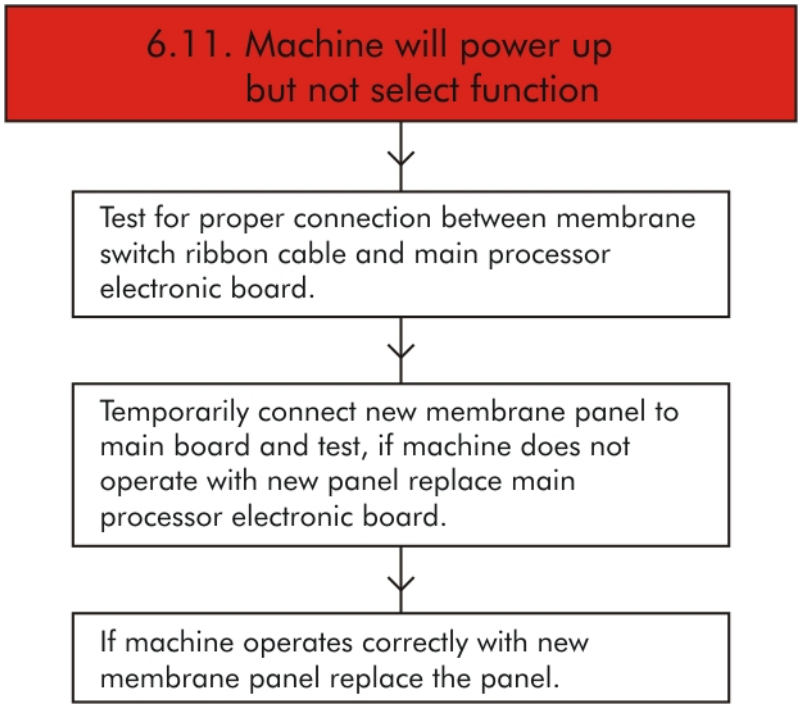
Check that machine is not placed close to a workshop heater where excess heat may be absorbed by the refrigerant cylinder, thus causing excess cylinder pressure.

Test the high pressure control switch, replace if faulty.

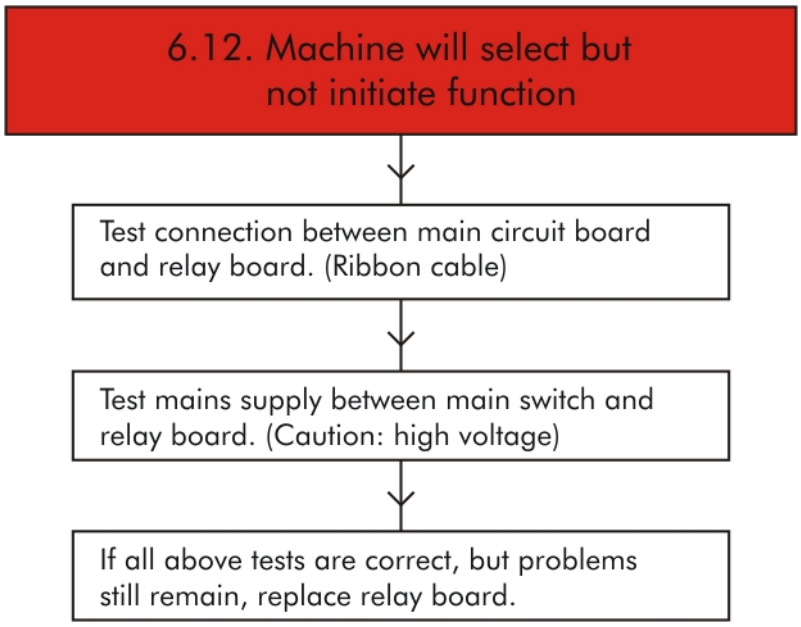
6.10. Machine will not power up


6.10. Machine will not power up
Check that on/off switch illuminates when switching machine on.
Test for correct mains supply.
Test machine power supply fuse for continuity. (Switch off machine and remove lead from power point before testing fuse).
Test transformer output for correct voltage (12-14V AC secondary side).
Check for possible damaged power lead, loose or disconnected wiring, (contact or connections)
If all above tests and checks are correct, replace main processor board.

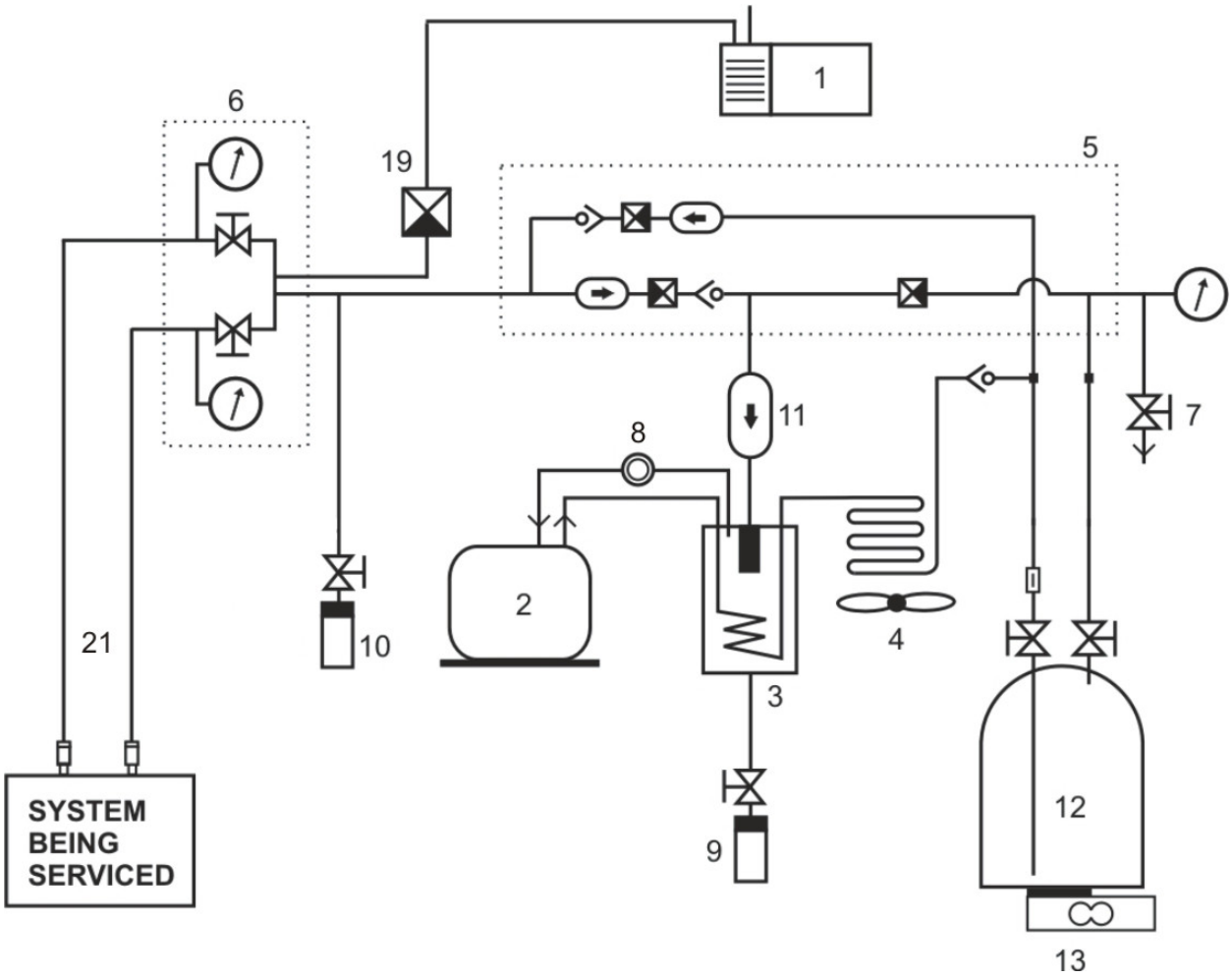
6.11. Machine will power up but not select function


6.11. Machine will power up but not select function
Test for proper connection between membrane switch ribbon cable and main processor electronic board.
Temporarily connect new membrane panel to main board and test, if machine does not operate with new panel replace main processor electronic board.
If machine operates correctly with new membrane panel replace the panel.

6.12. Machine will select but not initiate function


6.12. Machine will select but not initiate function
Test connection between main circuit board and relay board. (Ribbon cable)
Test mains supply between main switch and relay board. (Caution: high voltage)
If all above tests are correct, but problems still remain, replace relay board.

7. FLOW CHART



1. Evacuation Pump
2. Recovery Pump
3. Oil Separator
4. Air Cooled Condenser (HD model)
5. Solenoid Valve Manifold
6. Hand Manifold with Gauges
8. Moisture Indicator
7. Cylinder Air Purge Valve with Gauge
9. Recovered Oil Drain Valve
10. New Oil Injection Valve
11. Main Filter Dryer
12. Refrigerant Cylinder
13. Cylinder Platform & Load Cell
19. Evacuation Solenoid Valve
21. Service Hoses with Quick Couplers